CONNAUGHT LABORATORIES
RESEARCH DIVISION

GUNNAUGHT LABORATORIES
RESEARCH DIVISION

MODERN MEDICINE

VOLUME II

JANUARY TO DECEMBER, INCLUSIVE

1920

1271

PUBLISHED BY

THE MODERN HOSPITAL PUBLISHING CO., Inc.

CHICAGO

MODERN MEDICINE

EDITORS

ALEXANDER LAMBERT, M.D.
S. S. GOLDWATER, M.D.
JOHN A. LAPP, LL.D.
OTTO P. GEIER, M.D
C.-E. A. WINSLOW, Dr.P.H.
WALTER W. HAMBURGER, M.D.
KATHERINE M. OLMSTEAD, R.N.
SOLOMON STROUSE, M.D.
JEROME E. COOK, M.D.
JOHN B. HAWES, 2nd, M.D.
HUGO EHRENFEST, M. D.
SIDNEY I. SCHWAB, M.D.
LEWIS J. POLLOCK, M.D.
JOHN GREEN, Jr., M.D.
MAURICE H. GIVENS, M.D.
JOSEPH C. BOCK, Ch.E., Ph.D.
BORDEN S. VEEDER, M.D.
T C. HEMPELMANN, M.D.
J. ARCHER O'REILLY, M.D.
RALPH B. BETTMAN, M D.
GEORGE L HOFFMAN, Ph.D.
WILLIAM THALHIMER, M.D.

JOHN A. LAPP
Managing Editor

S. P. MOORE
Associate Managing Editor

914749

INDEX*

A

Abdicating Medical Leadership.. 643
Accidents Cost $50,000,000 Yearly.... 438
Accomplishments of the Past.... 565
Administration of Industrial Medicine.... 555
Adolescence, Autoerotic Phenomena in E. Menzies.... 774
After-Treatment of Surgical Patients Willard Bartlett.... 339
Agglutinins and Hemolysins.... 482
Air, Water, and Food Alpheus G. Woodman.... 268
Alameda, Public Health Center of, County—Annie Florence Brown 566
Albee, Fred H. Orthopedic and Reconstruction Surgery..268, Adv. 24
Albumin, On Sugar Cholesterol, Uric Acid, and.... 22
Alleged Deceit and Fraud Upon the Public as Grounds for Revocation of Physician's License—Leslie Childs.... 325
Allen, Walter C.—Must We Prepare for a Pandemic of Smallpox? 571
Allen, Walter C.—War Record of Tetanus.... 611
American Association of Industrial Physicians and Surgeons.... 291
American, Minimum Standard of the, College of Surgeons.... 161
American, New Administrative Home of, College of Surgeons.... 103
American, British Mace to, College of Surgeons.... 726
American Dietetic Association Meeting.... 697
American Hospital Association.... 734
American Journal of Nursing.... 695
American Journal of Obstetrics and Gynecology.... 784
American Journal of Physiology.... 209
American Journal of Public Health.... 654
American Medical Association.... 341
American Medical Association and Health Insurance.... 406
American Medico-Psychological Association.... .....468, Adv. 32
American Medical Association Meeting.... .....268, Adv. 32
American Medical School in Paris.... 9
American, Transactions of the, Pediatric Society—Edited by Oscar M. Schloss .....708, Adv. 22
American Physical Education Association.... .....268, Adv. 36
American Posture League—Its History, Work, and Future—Henry Ling Taylor 717
American, Heads, Public Health Association.... 645
American Public Health Association 645
American Public Health Association 686
American Public Health Association Meeting 581
American, Public Health Work for Colored in the South, Red Cross 817
Anatomical and Anthropological Association of China—E. V. Cowdry 792
Anatomy, Fundamentals of Human—Marsh Pitzman.... 774
Anatomy, Surgical Applied—Sir Frederick Treves.... 268
Anatomy, Applied, and Kinesology—Walter Pardon Bowen.... 268
Anemia, Lack of Sunlight as a Cause of.... 21
Anesthesia, Spinal 657
Anesthesia, Standard, Record 725
Animals Serve the Public Health.... 662
Annals of Medicine.... 595
Anthrax, Preventing 625
Anthrax Serum Cut Off.... 736
Aphorisms on Health.... 63
Application of a Domestic Remedy for a Fee as Practising Medicine—Leslie Childs 258
Application of War Surgery to Industrial Practice—Drury Hinton 38
Argument for a Broader Attack on the Tuberculosis Problem—Joseph Herzstein 441
Armstrong, Donald B.—
Sanitarian's Definition of a Living Wage.... 96
Tuberculosis in Cleveland—A Survey of Immediate Needs.... 510
Public Health Movement in the Light of Modern Psychology.... 810
Army Medical Museum and the Medical Profession—Charles F. Craig 542
Arthritis, Studies in.... 351
Arthritis, New Treatment of Suppurative.... 110
Aspects, Medical, of Health Insurance Administration—E. H. Lewinski-Corwin 113
Automat, New, in London.... 826
Automobile Fatalities in the United States—Jules Schevitz.... 156
Autonomic Nervous System and Disorders of the Stomach—Homer Wheelon 283

B

Babcock, Robert H.—Your Heart and How to Take Care of It.. . 838
Babies, Sick, Go A-Sailing Aboard a Floating Hospital.... 575
Bacilli from Human Tuberculosis.... 352
Bacteriologists Meet in Boston.... 129
Bacteriology, Elementary, and Protozoology—Herbert Fox.468, Adv. 22
Bacteriology in Abstract—A. B. Wallgren.....530, Adv. 22
Bad Housing and Ill Health—Jules Schevitz.... 156
Baketel, H. Sheridan—Treatment of Syphilis.....708, Adv. 22
Bamber, V. Kelway—Florence Nightingale: The Pioneer of Public Health Nursing 450
Barbershop Dangers—Jules Schevitz.... 677
Barnesby, Norman—Industrial Medicine.... 226
Bartlett, Willard—After-Treatment of Surgical Patients.... 339
Baskerville, Charles—Necessity for an Institute of Industrial Hygiene 363
Baskin, Joseph Statistical Review of Disability in the Workmen's Circle 730
Benefits, Medical, under Compensation Laws.... 224
Benzidin-Polychrome Stain for Blood.... 416
Biologie des Bronchitis Chroniques Avec Schierose Pulmonaire—Jacques Dalsace 774
Biology of Public Health Problems—Jules Schevitz.... 304
Biology of Blood Cells O. C. Gruner.....268, Adv. 28
Births Show Increase.... 824
Blair, Vilray Papin—Surgery and Diseases of the Mouth and Jaws .....268, Adv. 26
Bleyer, Adrien—Studies in Thymus Function.... 601
Bliss, Medical Department at E. W., Company—Donald M. Gildersleeve 559
Blood, Meningococcidal Activity 481
Blood, Coagulation Time of 482
Blood Volume Determined by Transfusion.... 483
Blood Chemistry in Pregnancy.... 552
Blood, Transfusion in, Stream Infections.... 596
Bogus Propaganda 457
Boller, Anna, and Roberts, M. J. Nutrition Class for Working Children in Chicago.... 664
Bolt, Richard A.—Coordination for Child Health.... 825
Bone, Repair of.... 203
Boorum, Mabel Montgomery—Hospital as a Health Center.... 518
Botulinus Poisoning 529
Boudreau, Eugene N.—Mental Disorders and Vocational Re-education 635
Boulder County Social Survey.... .....88, Adv. 36
Bowen, Walter Pardon—Applied Anatomy and Kinesology.... 268
Bowen, A. L.—Medical Service of Illinois State Institutions Under New Code 17
Brainard, Annie M.—Organization of Public Health Nursing..... .....88, Adv. 28
Bram, Israel Exophthalmic Goiter and Its Nonsurgical Treatment 838
Bray, C. B.—Dentistry a Phase of Medical Service.... 51
Brewer, H. M. Industrial Dental Dispensary.... 49
Brightness and Dullness in Children Herbert Woodrow.... 774
British Medical Association Meets at Cambridge.... 660
Broadening the Attack Upon Tuberculosis.... 378
Brocklank, E. M.—Diagnosis and Treatment of Heart Disease..... 838
Brown, Walter H., to Red Cross.... 467
Brown, Annie Florence—Public Health Center of Alameda County 566
Bunk and Bubonic Plague.... 677
Bureau of Economic Research.... 715
Burnham, A. C.—Rehabilitation in Its Relation to the Physician 93
Burton-Opitz, Russell—Textbook of Physiology.....580, Adv. 22

C

Cabot, Richard Clarke 275
Cabot, Richard C.—Physical Diagnosis 530
Cabot, Hugh—Compulsory Health Insurance, State Medicine, or What? 533
Calorimeter, Respiration, and Its Possibilities.... 105
Campaign, Venereal Disease, in North Carolina.... 521
Campaign Against Infant Mortality.... 615
Campaigns, National, for Health Work.... 710
Camps, Summer, to Supplement Physical Training.... 177
Can Health Be Taught?.... 831
Can You Afford to Miss It?.... 262
Canadian Tuberculosis Consultants .....708, Adv. 28
Cancer in Dye Workers .....774, Adv. 32
Cancer in Workers on Coal Briquettes.... 328
Cancer, Present Situation in 658
Cannon, M. A.—Demand for Medical and Psychiatric Social Workers 641
Care and Feeding of Infants and Children Walter Reeve Ramsey 774
Care for Malnourished Children.... 337
Care, Medical, of the Newborn Infant.... 720
Carless, Albert—Manual of Surgery.....530, Adv. 24
Carlson, Anton Julius—Control of Hunger in Health and in Disease 88
Carr, A. Moncrieff—Group Industrial Surgical Hospital.... 426
Case, Emergency Service of the J. I., Machine Company—John E. Konnak 136
Casualty, Revised, List 191
Catalysis, Biochemical, in Life and Industry—Jean Effront.... 178
Causes, Underlying, of the Narcotic Habit—Alexander Lambert.... 5
Census, Industrial Features of British.... 736
Central Council for Nursing Education—Martha Wilson.... 392
Centralization of Federal Health Activities.... 75
Cerebrospinal Fluid in Health and in Disease—Abraham Levinson .....88, Adv. 30
Chance, Equal 577
Chance, Burton—Trachoma in the Camps and Hospitals of the Army 60
Change in Name—Jules Schevitz.... 677
Chapin, Henry Dwight—Diseases of Infants and Children.268, Adv. 24
Chemistry for Nurses—Fredus N. Peters.....268, Adv. 30
Chicago Clinics for Malnourished Children.... 26
Chicago Infant Welfare Society—Sarah B. Place.... 335
Child Who Dwells at the Head of the Hollow John F. Smith..... 690
Child, Coordination of, Health Activities.... 521
Child Health Organization—L. Emmett Holt.... 584
Child Health Organizations Come Together 710
Child Hygiene in Missouri 593
Child, Program of, Hygiene.... 762
Child Hygienists Meet 656
Child, Observance of, Labor Day.... 52
Child Labor in the United States.... 59
Child Welfare in Kentucky 340
Child Welfare and Health 476
Child Welfare in Kansas 440
Child Welfare in Ontario .....640, Adv. 32
Child Welfare and the Red Cross.... 516
Child, Two, Welfare Schemes 649
Child Welfare Work in South Africa.... 653
Children, Physical Fitness of.... 593
Children, Surgical Diseases of—Samuel W. Kelley.... 530
Children, Mentally Deficient—G. E. Shuttleworth.....268, Adv. 22
Childs, Leslie—
Alleged Deceit and Fraud upon the Public as Grounds for Revocation of Physician's License.... 325
Application of a Domestic Remedy for a Fee as Practising Medicine 258
Liability of a Physician for Selling Drugs Without a Prescription 467
Right of a Physician Selling Location and Practice to Resume Practice in Immediate Vicinity.... 86
Right of Physician to Rate Himself Relative to His Professional Standing for the Purpose of Determining Amount of His Fee 528
Validity of Contract to Furnish Patient Medical Services for Life 172
Choosing the Industrial Nurse—R. T. Solensten.... 437

*Material printed on advertising pages shows last text page preceding advertising page number: thus, 88, Adv. 22.

Chorea Minor—Park J. White ... 788
Christian, Henry A.—Oxford Medicine, Volume I.....774, Adv. 22
Church, Archibald—Nervous and Mental Diseases.....530, Adv. 24
Church and Social Hygiene.. 824
Cincinnati Survey of the After Effects of Influenza Paul Mason.. 305
Circulatory Efficiency 553
Cleveland, Orthopedic Needs of 319
Climate, Common Sense About—Charles Henry Lerrigo 738
Clinic, Psycho-Educational—Its Constructive Policy—Hermione L. Dealey 743
Clinics, Dental, Are Successful 630
Clinics for Practitioners 103
Clinics for Rural Districts 337
Clinics United for Mind Cases.....88, Adv. 42
Coating for Poison Tablets for the Prevention of Accidental Poisoning—Gray Phillips 155
College Association Elects Officers 302
Collins, Mary D.—Home Hygiene Classes in Schools Are Popular 823
Colloids in Health and Disease—Alfred B. Searle 708
Colorado Has Traveling Dispensaries 9
Comparison 393
Comparison of Pay with Purchasing Power 654
Compendium of Necessary Constants 146
Compensation of Health Officers 625
Compensation, Fee Schedules Under Workmen's 498
Compensation, Medical Benefits Under, Laws 224
Complement Fixation in Diagnosis of Tuberculosis 207
Complications, Post-Operative Pulmonary 785
Concerning Some Headaches and Eye Disorders of Nasal Origin—Greenfield Sluder .....340, Adv. 22
Congress on Medical Education and Licensure 318
Considerations, Scientific, in Nutrition—Jane Teare Dahlman 688
Consultative Council on Medical and Allied Services 634
Contributions of Laymen to Medical Science—James A. Tobey 272
Control of Hunger in Health and in Disease—Anton Julius Carlson 88
Cook, Henry Wireman—Relation of the Medical Department to the Company 142
Cooperative Medical Society in Belgium 314
Coordination of Child Health Activities 521
Coordination for Child Health—Richard A. Bolt 825
Coordination in Public Health Nursing Activities 264
Correll, Carrie B.—Organization of an Industrial Nurses' Club 629
Corwin, E. H. Lewinski—Medical Aspects of Health Insurance Administration 113
Council on General Nursing 321
County, Health Work at the, Fair—Stella Fuller 579
Cowdry, E. V.—Anatomical and Anthropological Association of China 792
Craig, Charles F.—Army Medical Museum and the Medical Profession 542
Crile, George W., Surgical Shock and the Shockless Operation Through Anoci-Association.....838, Adv. 22
Cripples in New York City 684
Crises of Adolescence—A. Levinson 716
Criteria of Social Progress 583
Crum, Frederick S.—Restaurant Facilities for Shipyard Workers.. 138
Cumming, Dr. Hugh S 379
Cumming, James G.—Saliva-Borne Infections 502
Cumming, Surgeon General, New Chief of Public Health Service.. 191
Cunningham's Manual of Practical Anatomy—Arthur Robinson.....774, Adv. 22

D

Dahlman, Jane Teare—Scientific Considerations in Nutrition..... 688
Dalsace, Jacques—Etude Critique de l'Etiologie des Bronchitis Chronique Avec Schlerose Pulmonaire 774
Day, Working 3
Dealey, Hermione L.—Psycho-Educational Clinic—Its Constructive Policy 743
Deaths Due to Accident a Public Health Problem 303
De Costa, John Chalmer—Modern Surgery 339
DeHart, Sanford—Service Department of the R. K. LeBlond Machine Tool Company 365
Delinquent, Individual—William Healy 708
Delray Health District 699
Demand for Medical and Psychiatric Social Workers M. A. Cannon 641
Demonstration, Personal Hygiene—M. Edgar Rose 678
Dennett, Roger H.—Simplified Infant Feeding.....642, Adv. 22
Denno, Williard J. Health Officer 468
Dentistry a Phase of Medical Service—C. B. Bray 51
Dentists, College of American 762
Dermatoses—Safety Council Committee Studies 150
De Schweintz, G. E.—Military Ophthalmic Surgery.....774, Adv. 22
Detection of Typhoid Carriers F. M. Meader 244
Diabetes—Ernest E. Waters.....340 Adv. 24
Diabetes, Studies in Experimental 416
Diabetes, Studies in, Mellitus 656
Diagnosis, Manual of Physical Austin Flint.....708, Adv. 22
Diagnosis, Physical—Richard C. Cabot 530
Diarrhea, Water Loss in Summer 484
Dictionary of Treatment—William Whitla 774
Dietetics, Practical, with Reference to Diet in Health and Disease—Alida Frances Pattee.....268, Adv. 22
Dietetics in the Public Health Campaign 151
Diphtheria, Twenty-Five Years of, Serotherapy 182
Director, Appointed, General 307
Disabilities as Related to Efficiency, Nervous and Mental Lewis J. Pollock 724
Discussion of Medical Practice Relating to Health Conservation—S. S. Goldwater 407
Disease? Are We Controlling Venereal—Jules Schevitz 507
Diseases of the Chest and the Principles of Physical Diagnosis—George William Norris.....642, Adv. 22
Diseases of Infants and Children—Henry Dwight Chapin.268, Adv. 24
Diseases, Infectious—Claude Buchanan Ker.....838, Adv. 22
Diseases, Nervous and Mental—Archibald Church.....530, Adv. 24
Diseases of Nutrition and Infant Feeding—John Lovett Morse.....340, Adv. 22
Disease, Problem of 525
Disease, Venereal, Quantitative Factors in the Control of 807
Diseases of the Stomach, Intestines, and Pancreas—Robert Coleman Kemp .....338, Adv. 24
Diseases, Tropical—George L. Hoffman 445
Dispensaries, Abuse of 769
Dispensary, Industrial Dental—H. M. Brewer 49
Dispensary, Service of 180
Doctors and Health Lectures Florence L. Meredith 700
Donoghue, Francis D—Medical Service Under the Massachusetts Compensation Act 803
Drug, Hospitalization of, Addicts 469
Duclaux, Emile—Pasteur—The History of a Mind 838
Dunn, Canby—Purposes of the League for Health 646
Duodenal Tube and Its Possibilities—Max Einhorn 838
Duration of Wage Earners' Disabilities 364
Duties of the Private Health Agency—Jules Schevitz 242

E

East, Edward M.—Inbreeding and Outbreeding 468
Economy and Efficiency in Medical Service George A. Kingston.. 797
Economy of Proper Medical Treatment Paul B. Magnuson 799
Education, Can't Cut Medical, Courses 115
Education in Industrial Medicine 491
Education for Motherhood .....468, Adv. 28
Education and Public Health, and the Lamar Bequest 675
Efficiency of Mine Labor as Related to Industrial Medicine—Arthur L. Murray 606
Effront, Jean—Biochemical Catalysis in Life and Industry 178
Ehrenfeld, Rose M.—Evolution of Public Health Nursing 755
Ehrenfest, Hugo—
Illegitimacy as a Child Welfare Problem 522
Standards of Public Maternity Care 27
Eight-Hour Day and Efficiency 406
Einhorn, Max—Duodenal Tube and Its Possibilities 838
Elements Essential to Nutrition 750
Ellis, Havelock—Philosophy of Conflict and Other Essays in War-Time .....268, Adv. 26
Emasculation of Ohio Health Law 182
Emergency Service of the J. I. Case Threshing Machine Company—John E. Konnak 136
Emmett, Boris Trade Union Disability Insurance 250
Empyema, Acute 280
Encephalitis, Epidemic—James M. Stanton 353
Endothelioma, So-Called 784
Epidemics in Poland 63
Era of Preventive Medicine 146
Etude Critique de l'Etiologie des Bronchitis Chroniques Avec Schlerose Pulmonaire—Jacques Dalsace 774
European Health Situation 324
Evans, Elida—Problem of the Nervous Child 642
Evolution of Public Health Nursing—Rose M. Ehrenfeld 755
Ewing, James—Neoplastic Diseases 530
Experience of the Medical Department at Nitro, W. Va.—J. A. Watkins .....293, 370, 432, 494, and 556
Extension of Medical Service—J. Middleton Martin 808
Extension of Medical Services 716
Eye, When the, Gate Is Closed 782
Eye Injuries—Frank C. Trebilcock 46
Eye Work of the Hood Rubber Company—Harry A. Watts 49

F

Factory, Modern 572
Facts About Public Health Nursing 259
Farnsworth, Helen—How Kansas City Educates Nurses 520
Fatigue, Monotony and, in Shop and Office 425
Fatigue Study—Frank B. Gilbreth 340
Federal Aid to the States 715
Federation Becomes Popular 816
Fee Schedules Under Workmen's Compensation 498
Fees on Graduated Income Basis 672
Feeble-Mindedness and Tuberculosis 824
Feeding of Healthy Children 112
Ferry Boat a Preventorium 538
Fetus, Nutrition of the 111
Fishberg, Maurice—Pulmonary Tuberculosis.....268, Adv. 30
Fitzgerald, Miss Alice, of the League of Red Cross Societies 573
Flint, Austin—Manual of Physical Diagnosis.....708, Adv. 22
Foley, Edna L.—Heads National Organization for Public Health Nursing 449
Foley, Edna L.—Public Health Nursing in Italy 331
Food, Course in Analysis—Andrew L. Winton.....340, Adv. 22
Food Inspection and Analysis—Albert E. Leach.....530, Adv. 24
Food Restriction and Mortality—Jules Schevitz 304
Formulation of New Safety Codes 230
Forty, Woman of—Edith B. Lowry 340
Fox, Herbert—Elementary Bacteriology and Protozoology.468, Adv. 22
Fuller, Stella—
Introducing Public Health Nursing in Training Schools 821
Health Work at the County Fair 579
Red Cross Public Health Nursing 386
Fulton, Medical Department of, Bag and Cotton Mills—D. T. Heyser 673
Future of Medical Practice 297
Future of Industrial Medicine as a Labor Policy—Otto P. Geier... 794

G

Garbage Disposal and the Public Health 501
Geddes, Sir Auckland, and Social Reconstruction 270
Geier, Otto P. 426
Geier, Otto P.—
Physician and Surgeon in the Industrial Crisis 41
Future of Industrial Medicine as a Labor Policy 794
Gerster, John C. A.—Preventable Losses in Casualty Insurance.... 728
Gildersleeve, Donald—Medical Department at E. W. Bliss Company 559
Girl, Neurotic—Jessie Taft 163
Goiter, Exophthalmic, and His Nonsurgical Treatment—Israel Bram 838
Goiter, Prevention of Simple 595

Goiter, Simple—A Public Health Problem—Carey P. McCord..... 124
Goiter Survey in Ohio..... 791
Goldston, I. A. Memorandum on Malnutrition..... 616
Goldwater, S. S.—Discussion of Medical Practice Relating to Health Conservation..... 407
Gorgas, General William C..... 531
Goulds, Plant Hospitnl of the, Manufacturing Company—H. G. Mencham..... 608
Greenwood, Allen—Military Ophthalmic Surgery.....774, Adv. 22
Grenfell, Wilfred Thomason Labrador Doctor..... 268
Griffith, J. P. Crozer—Diseases of Infants and Children...268, Adv. 28
Grip Epidemic in Japan..... 243
Group Industrial Surgical Hospital—A. Moncreiff Carr..... 426
Gruner, O. C.—Biology of Blood-Cells.....268, Adv. 28

H

Hammarsten, Olof—Textbook of Physiological Chemistry.340, Adv. 22
Handicapped, Report of Work for..... 633
Handshaking as a Route of Infection—H. W. Hill..... 72
Hare, Hobert Amory—Symptoms in the Diagnosis of Disease.....642, Adv. 22
Harris, Louis I.—Defines Policies of Industrial Hygiene Bureaus 132
Hawes, John B., 2nd—
Influence of Medical Profession on Legislation and the Public Welfare..... 740
Review of Recent Literature on Tuberculosis..... 598
Hazen, Henry H.—Syphilis..... 530
Headache as a Danger Signal..... 633
Health, American Medical Association and, Insurance..... 406
Health Centers for All New York Boroughs.....268, Adv. 38
Health Centers in New Haven..... 404
Health Center in New York..... 269
Health Centers: A Field for Red Cross Activity..... 2
Health Class Idea—Ira S. Wile..... 746
Health Department and the Hospital..... 439
Health, Compulsory, Insurance, State Medicine or What?—Hugh Cabot..... 533
Health Conservation, Discussion of Medical Practice Relating to—S. S. Goldwater..... 407
Health Hazards in Chemical Industries..... 641
Health, Ill, a Social Offense..... 59
Health, Improves Rural, Administration..... 224
Health, New York Medical Society Presents, Insurance Reports.... 172
Health, Industrial, Literature..... 499
Health Interpretation..... 643
Health, Issues Weekly Index..... 20
Health Lectures for Training Schools..... 456
Health, Modern Machinery in Diagrams..... 35
Health Officer—Frank Overton and Willard J. Denno..... 468
Health, Plan, Conservation..... 20
Health, Rural, Problems..... 249
Health and the Rural School—Louis Win Rapeer..... 703
Health Service at the University of California—Robert T. Legge.. 400
Health Statistics for Belgium..... 577
Health Work at the County Fair—Stella Fuller..... 579
Healy, William—Individual Delinquent..... 708
Heart in Acute Infectious Diseases—Wayne A. Rupe..... 210
Heart—Cardiac Ailments a Prevalent Cause of Death..... 91
Heart—Cardiac Ailments a Most Prevalent Cause of Death..... 467
Heart—Cardiac Classes for School Children..... 240
Heart, Diagnosis and Treatment of Disease—E. M. Brockbank..... 838
Heart Disease as a Public Health Problem..... 662
Heart—Reconsideration of Cardiac Affections..... 23
Heart—The Social Aspect of the Cardiac Case..... 343
Heart, Social Phases of, Disease in Children—A. Levinson..... 717
Heart, Your, and How to Take Care of It—Robert H. Babcock.... 838
Heilman, Mrs. Charlotte—Infant Welfare Work in Athens..... 752
Heliotherapy..... 453
Heliotherapy, Natural and Artificial—E. H. Skinner..... 487
Hemiplegia, Spontaneous and Traumatic—Walter D. Wise..... 200
Hemolysins, Agglutinins and..... 482
Heredity, Newer Literature on..... 550
Heredity, Physical Basis of—Thomas Hunt Morgan..... 339
Herrick, W. W.—Recent Work on Meningococcus Infection..... 109
Hertzler, Arthur E.—The Peritoneum..... 642
Herzstein, Joseph—Broader Attack on Tuberculosis Problem..... 441
Heyser, D. T.—Fulton Bag and Cotton Mills Medical Department 673
Hill, H. W.—Handshaking as a Route of Infection..... 72
Hinton, Drury—Application of War Surgery to Industrial Practice 38
Hinton, Drury—Wound Infection in Industry..... 431
Hoffman, George L.—Tropical Diseases..... 445
Holmes, Dr. Christian R., Master Builder, Medical Statesman.... 131
Holt, L. Emmett—The Child Health Organization..... 584
Home Hygiene Classes in Schools Are Popular—Mary D. Collins... 823
Hood Rubber Company, Ocular Work of—Harry A. Watts..... 49
Hookworm Disease, Retardation from..... 448
Hospital and First Aid Corps..... 757
Hospitals and Tuberculosis..... 405
Hospitals, Group Industrial Surgical—A. Moncreiff Carr..... 426
Hospital as Health Center—Mabel Montgomery Boorum..... 518
Hospital and Health Survey—Howell Wright..... 160
Hospital Progress..... 342
Hospital Social Service Quarterly..... 87
Hospitalization of Drug Addicts..... 469
Hotel McAlpin, High Standards in Health Care—Samuel H. McFarlane..... 667
Hotels, Medical Service in—E. M. Statler..... 109
Housing and Ill Health—Jules Schevitz..... 156
Housing Conditions in Great Britain..... 248
Human Engineering—A New Medical Specialty—Frank Leslie Rector..... 133
Hyatt, T. P.—Dental Division of the Metropolitan Life Insurance Company..... 237
Hydrocephalus, Surgical Treatment of..... 721
Hygiene, The Church and Social..... 824
Hygiene in Canada, Industrial..... 549
Hygiene and Public Health, Industrial..... 597
Hygiene Program for Nurses, A Mental..... 654
Hygiene Mental and Public Health..... 440
Hygiene, Military and Civil..... 529
Hygiene Demonstration—M. Edgar Rose..... 678
Hygiene Problems, Present Day Social—Lee Alexander Stone..... 763
Hygiene and Social Unrest..... 321
Hypercholesterinemia..... 722

I

Illegitimacy as a Child Welfare Problem, A—Hugo Ehrenfest.... 532
Illness Chief Cause of Poverty..... 87
Immigration, National Conference on.....340, Adv. 30
Immunity in Tuberculosis—W. H. Watterson..... 152
Inbreeding and Outbreeding—Edward M. East..... 468
Indians and Health..... 685
Industrial Physicians and Surgeons..... 328
Industrial Medicine, Education in..... 491
Industrial Medicine—Norman Barnesby..... 226
Industrial Physicians Meet..... 182
Industrial Physicians Meet with Safety Council..... 605
Industrial Rehabilitation Act..... 663
Industry, For Victims of..... 733
Industry, Types of Physicians Contacting with..... 793
Infant Feeding, Simplified—Roger H. Dennett..... 642
Infant Mortality, Campaign Against..... 615
Infant Mortality, Instruction Reduces..... 480
Infant Mortality, Irreducible..... 450
Infant, Medical Care of the Newborn..... 720
Infant Mortality in Saginaw, Mich.—Jules Schevitz..... 156
Infant Mortality, Reduction of—D. M. Lewis..... 247
Infant Welfare Centers..... 820
Infant Welfare Affected by Class Distinctions and National Traits—A Levinson..... 650
Infant Welfare Work in Athens—Mrs. Charlotte Heilman..... 752
Infection, Handshaking as a Route of—H. W. Hill..... 72
Infection, Immunity and Specific Therapy with Special Reference to Immunologic Technic—John A. Kolmer.....468, Adv. 22
Infections, Respiratory Tract..... 414
Influence of Medical Profession on Legislation and Public Welfare—John B. Hawes, 2nd..... 740
Influence of War on Concepts of Mental Disease and Neuroses—Sidney I. Schwab..... 192
Influenza, Chlorin Tests in.....580, Adv. 30
Influenza, Cincinnati Survey of the After Effects of—Paul Mason.. 305
Influenza, Mortality from..... 325
Influenza and Pregnancy—S. A. Weintraub..... 219
Inhibition, A Prime Motive in Child Training—A. Levinson..... 472
Injuries to the Head and Neck—H. Lawson Whale..... 642
Injuries, More Pay for..... 364
Inspection in Big Horn County, Montana, Medical—W. A. Russell 159
Inspection of Schools in Pennsylvania, Medical—George K. Strode.. 758
Instruction Reduces Infant Mortality..... 480
Insurance, Public Health and..... 737
Intelligence Tests in Public Schools.....88, Adv. 36
Internal Medicine, Congress on..... 95
Interest in Science, Public..... 710
International Clinics—Edited by H. R. M. Landis..... 708
International Medical Congress.....642, Adv. 28
International Public Health..... 625
International Sanitary Conference.....580, Adv. 24
Introducing Public Health Nursing in Training Schools—Stella Fuller..... 821
Iso-Agglutinins in Infants and Children..... 481
Italy, Public Health Nursing in—Edna L. Foley..... 331
Itinerary of a Breakfast—J. H. Kellogg.....88, Adv. 22

J

Jacobs, Philip P.—National Tuberculosis Association: What It Is and What It Does..... 711
Jones, Donald F., and Edward M. East—Inbreeding and Outbreeding..... 468

K

Kansas, Child Welfare in..... 440
Kansas Health Car "Warren"—Florence Brown Sherbon..... 315
Kansas City Educates Nurses—Helen Farnsworth..... 520
Kansas City Meets Nurse Problem..... 520
Kansas City Nurses Make Report..... 387
Kelley, Samuel W.—Surgical Diseases of Children..... 530
Kellogg, J. H.—Itinerary of a Breakfast.....88, Adv. 22
Kemp, Robert Coleman—Diseases of the Stomach, Intestines, and Pancreas.....338, Adv. 24
Kentucky, All-Time Health Officer in..... 328
Kentucky, Child Welfare in..... 340
Kentucky, Medical Profession in..... 123
Ker, Claude Buchanan—Infectious Diseases.....838, Adv. 22
Kingston, George A.—Economy and Efficiency in Medical Service 797
Kolmer, John A.—Infection, Immunity and Specific Therapy with Special Reference to Immunologic Technic.....468, Adv. 22
Konnak, John E.—Emergency Service of the J. I. Case Threshing Machine Company, The..... 136
Krause, Prof. Fedor—Textbook of Surgical Operations..... 642
Krumbhaar, Edward B.—Diseases of Chest and Principles of Physical Diagnosis.....642, Adv. 22

L

Labor Bureau Council..... 761
Laboratory Facilities in Rural Districts..... 75
Laboratory Tests, Group Picture Showing..... 199
Laboratories, Need of More..... 307
Laboratory Work in New York—Augustus B. Wadsworth..... 54

Labrador Doctor, Wilfred Thomason Grenfell.... 268
Lamar Request, Public Health Education and the.... 675
Lambert, Alexander Underlying Causes of the Narcotic Habit.... 5
Lange Colloidal Gold Reaction.... 279
Lanza Joins Cleveland Firm as Medical Director.... 198
LaPorte Treatment for Chronic Osteomyelitis.... 486
LaRue, Miss Mary—Wisconsin Welfare Workers Association.... 454
Laws, American, Favor Labor.... 837
Leach, Albert E. Food Inspection and Analysis.....530, Adv. 24
Lead Poisoning, Damages for.... 509
Lead Poisoning, Precautions Against .....268, Adv. 38
League for Health, Purposes of—Canby Dunn.... 646
League of Red Cross Societies.....468, Adv. 30
League of Red Cross Societies, Miss Alice Fitzgerald of the..... 573
Leavitt, Frederick Elmer Operations of Obstetrics.....268, Adv. 24
LeBlond Machine Tool Company, Service Department of—Sanford De Hart 365
Legge, Robert T.—Student's Health Service at University of California 400
Legislation and Public Welfare, Influence of Medical Profession on John B. Hawes, 2nd.... 740
Leo-Wolf, Carl G.—The Child in Health and Illness....642, Adv. 22
Leo-Wolf, Carl G.—Nursing in Diseases of Children.... 340
Lerrigo, Charles Henry—Common Sense About Climate.... 738
Lesion of Rheumatic Fever.... 352
Leukemia, Eosinophilic 483
Levinson, Abraham
Cerebrospinal Fluid in Health and in Disease.....88, Adv. 30
Crises of Adolescence.... 716
Infant Welfare Affected by Class Distinctions and National Traits 650
Inhibition, A Prime Motive in Child Training.... 472
Psychology of the Sick Child.... 590
Reconstruction of the Sick Child.... 344
Social Phases of Heart Disease in Children.... 717
Social Service Among Children.... 411
Sociological Phases of the Tuberculosis Problem in Children.... 539
Lewis, D. M.—Reduction of Infant Mortality.... 247
Lewy, Raphael—Traumatic Surgery in Its Relation to Workmen's Compensation Laws 298
Liability of a Physician for Selling Drugs Without a Prescription—Leslie Childs 467
Lindeman, E. C.—Relationship Between Rural Recreation and Public Health Nurses.... 631
Localization of Brain Tumor.... 415
Losses, Preventable, in Casualty Insurance—John C. A. Gerster... 728
Lowry, Edith B.—The Woman of Forty.... 340
Lymphatic System, Tuberculosis of the Walter Bradford Metcalf 178

M

Mace to American College of Surgeons, British.... 726
Magnuson, Paul B.—Economy of Proper Medical Treatment.... 799
MacFarlane, Samuel H.—High Standards in Health Care at Hotel McAlpin 667
Making America Safe for Babies.... 653
Malnutrition, Memorandum on—I. A. Goldston.... 616
Malnutrition, Poverty Not Sole Cause for.....642, Adv. 36
Manual of Surgery (Rose & Carless), Albert Carless.....530, Adv. 24
Marr, H. C. Psychoses of the War.....88, Adv. 24
Martin, J. Middleton—Scheme for the Extension of Medical Services 808
Mason, Paul—Cincinnati Survey of After Effects of Influenza.... 305
Maternity Centers in New York.... 337
Maternity Care, Standards of Public Hugo Ehrenfest.... 27
Maternity Benefits .....88, Adv. 42
Maxeiner, Stanley R. War Contributions to Industrial Surgery.... 231
McCann, Alfred W. Science of Eating.....88, Adv. 26
McClaskie, Miss Maude—Michigan Training Schools for Nurses Secure Recruits 696
McCord, Carey P., and Robert C. Walker—Simple Goiter—a Public Health Problem 124
McDonald, Archibald Leete—Essentials of Surgery.....88, Adv. 26
McFarland, Joseph—Pathogenic Bacteria and Protozoa...530, Adv. 22
McKenzie, R. Tait—Reclaiming the Maimed.....88, Adv. 24
Meacham, H. G. Plant Hospital of Gould Manufacturing Company 608
Meader, F. M. Detection of Typhoid Carriers.... 241
Measles and Experimental Inoculation.... 206
Medical Research Council.... 424
Medicine as Related to Efficiency, Industrial—John A. Turner..... 668
Medico-Historical Bulletin 551
Meeker Goes to World League, Royal.... 582
Meingococcus Infection, Recent Work by W. W. Herrick..... 109
Menstruation, Toxic State of.... 787
Mental Defect and Criminal Conduct.... 716
Mentality Tests a Safety Measure.....340, Adv. 34
Mentzer, Mary Jones—Perspective in Diagnosis of Pulmonary Tuberculosis 813
Menzies, K.—Autoerotic Phenomena in Adolescence.... 774
Meredith, Florence L. Doctors and Health Lectures.... 700
Meredith, Florence Health Clinics 64
Merrill, Theodore C. Public Health Notes from the Vosges..... 308
Metcalf, Walter Bradford Tuberculosis of the Lymphatic System.. 178
Methods, Diagnostic Ralph W. Webster.... 708
Metropolitan Life Insurance Company, Dental Division of—T. P. Hyatt 237
Michigan Mutual Liability Company, Hospital of the..... 604
Michigan Training Schools for Nurses Secure Recruits Maude McClaskie 696
Midwifery, Teaching of Practical.... 154
Midwives Gradually Disappear, Will.... 32
Mills, John Realities of Modern Science..... 268, Adv. 22
Mississippi Valley Medical Association 723
Mississippi Valley Conference on Tuberculosis.... 685
Mitchell, Harry H. Need of Protecting the Health of Working Children 517
Missouri Nurses Plan Radical Changes.... 751
Modern Medicine Selected by National Association..... 709
Monaghan, Frank J.—Supervision of Institutions by the Health Department of New York City.... 76
Monotony and Fatigue in Shop and Office.... 425
Moore, S. P.—
Measure of Personality.... 472
Psychoanalysis Restated 655
Moorman, L. J.—Plan to Stimulate the Family Physician in the Diagnosis of Tuberculosis.... 313
Morgan, Thomas Hunt—Physical Basis of Heredity..... 339
Morse, John Lovett Diseases of Nutrition and Infant Feeding... .....340, Adv. 22
Mortality, Neo-Natal 725
Mowell, John Wilson Systems of Medical Service..... 802
Murray, Arthur L. Efficiency of Mine Labor as Related to Industrial Medicine 606

N

Narcotics, Restrictions on.... 156
National Conference of Jewish Charities.....268, Adv. 32
National Dental Association Meets.....580, Adv. 26
National Nursing Headquarters Established.... 627
National Organization for Public Health Nursing..... 449
National Physical Education 338
National Physical Education Service 302
National, Growth of the, Safety Council Membership Louis Resnick 368
National, New Officers of Safety Council..... 734
National Safety Council 605
National Tuberculosis Association .....340, Adv. 30
National Tuberculosis Association Meets 302
National Tuberculosis Association: What It Is and What It Does Philip P. Jacobs.... 711
Neall, Margaret—Women Seek Careers in School of Occupational Therapy 170
Necessity for an Institute of Industrial Hygiene—Charles Baskerville 363
Need of Protecting the Health of Working Children—Harry H. Mitchell 517
Neoplastic Diseases—James Ewing..... 530
New Jersey Venereal Disease Bureau Uses Novel Publicity Methods—Alec N. Thompson..... 735
New Mexico, New Health Law in..... 321
Newman, George—State and Future of Medical Practice..... 766
New York Academy of Medicine, New York City—Problem of Disease 638
New York Health Center Plan and Memorandum..... 276
New York Governor Makes Health Recommendations..... 104
New York Medical Society Presents Health Insurance Reports..... 172
New York Purchases Radium..... 609
New York Studies Malignant Disease..... 686
Nicholson, Watson Historical Sources of Defoe's Journal of the Plague Year .....580, Adv. 22
Night Medical Service for Paris..... 328
Nightingale, Florence, Tableau..... 266
Nightingale, Florence: Pioneer of Public Health Nursing Miss V. Kelway Bamber 450
Norm of Human Nutrition..... 581
Norris, George William Diseases of the Chest and the Principles of Physical Diagnosis .....642, Adv. 22
North Carolina, Venereal Disease Campaign in..... 521
Norton, John F.—Air, Water and Food..... 268
Nose, Paranasal Sinuses, Nasolacrimal Passageways, and Olefactory Organ in Man—J. Parsons Schaeffer..... 838
Noyes, Miss, Honored..... 515
Nurse, Choosing the Industrial—R. T. Solensten..... 437
Nurse, Why a Public Health?—Gertrude M. Rines..... 262
Nurses, Call for Public Health..... 449
Nurses, Industrial, Organize..... 564
Nurses, Scarcity of..... 336
Nurses, Shortage of..... 515
Nursing in Diseases of Children Carl G. Leo-Wolf..... 340
Nursing, Problems of, Education..... 456
Nursing, Facts About Public Health..... 259
Nursing, Organization of Public Health—Annie M. Brainard..... .....88, Adv. 28
Nursing, Industrial 52
Nursing, San Francisco Meeting Discusses..... 687
Nutrition Class for Working Children in Chicago—M. J. Roberts.. 664
Nutrition Classes in the Chicago Schools—Mrs. Ira Couch Wood.... 388
Nutrition of the Fetus..... 111
Nutrition, Norm of Human..... 581
Nutrition, Scientific Considerations in—Jane Teare Dahlman..... 688
Nutrition—Studies in..... 687

O

Obstetrics, Operations of—Frederick Elmer Leavitt.....268, Adv. 24
Occupation and Tuberculosis Jules Schevitz..... 698
Occupational Bureau for Nurses.....642, Adv. 28
Occupational Therapy and Vocational Guidance for the Tuberculous—H. A. Pattison..... 10
Occupational Therapy Association Organized.....838, Adv. 22
Officer, Industrial Medical..... 783
Ohio, Emasculation of, Health Law..... 182
Ohio Studies Moral Delinquency..... 328
Oklahoma City Health Survey..... 706
Oklahoma Health Conference..... 715
Organization of an Industrial Nurses' Club—Mrs. Carrie B. Correll 629
Orthopedic and Reconstruction Surgery—Fred H. Albee..268, Adv. 24
Osborn, Stanley H. Typhoid Fever and Its Sources in Massachusetts 618
Osler, Sir William, Dies Abroad..... 4
Osler, Sir William, Late..... 20
Osteomyelitis, LaPorte Treatment for Chronic..... 486
Organization of Public Health Nursing Annie M. Brainard..... .....88, Adv. 28
Oxford Medicine, Volume I—Henry A. Christinn.....774, Adv. 22

P

Pan-American Alliance for Physicians.....340, Adv. 24

Pan-American Conference .....580, Adv. 24
Pasteur—History of a Mind—Emile Duclaux..... 838
Pattee, Alida Frances—Practical Dietetics with Reference to Diet in Health and Disease.....268, Adv. 22
Pattison, H. A.—Occupational Therapy and Vocational Guidance for the Tuberculous 10
Pedersen, Victor Cox—Textbook of Urology in Men, Women, and Children 178
Penalizing Education 90
Pennsylvania Industrial Physicians Confer.....268, Adv. 34
Pennsylvania, Medical Inspection of Schools in George K. Strode 758
Pennsylvania, Medical Problems in..... 318
Pennsylvania Commission .....340, Adv. 36
Pentosuria, Studies in..... 594
Peritoneum 642
Personality, Measure of—S. P. Moore..... 472
Perspective in Diagnosis of Pulmonary Tuberculosis—Mary Jones Mentzer 813
Peters, Fredus N.—Chemistry for Nurses.....268, Adv. 30
Peterson, Edwin A., To Direct Red Cross Health Service Department 92
Phagocytosis and Leukocytosis Caused by Leukocytic Extracts.... 595
Phillips, Gray—Coating for Poison Tablets for the Prevention of Accidental Poisoning 155
Philosophy of Conflict, and Other Essays in War-Time Havelock Ellis .....268, Adv. 26
Physicians, Bedside Training for..... 115
Physicians Confer with Safety Council..... 644
Physician and Surgeon in the Industrial Crisis Otto P. Geier..... 41
Physicians Contacting with Industry..... 793
Physicians, Industrial, Meet..... 341
Physiology, American Journal of..... 209
Physiology, Principles of Human—Ernest H. Starling..... 708
Physiology, Textbook of—Russel Burton-Opitz.....580, Adv. 22
Pitzman, Marsh—Fundamentals of Human Anatomy..... 774
Pisek, Godfrey Roger Diseases of Infants and Children..268, Adv. 24
Place, Sarah B.—Chicago Infant Welfare Society..... 335
Plan to Stimulate the Family Physician in the Diagnosis of Tuberculosis L. J. Moorman..... 313
Platt, Philip S.—Public Health Survey of Prague, Czecho-Slovakia 474
Play, Florence Nightingale 266
Pneumonia, Serum Therapy in..... 129
Pneumonia, Rapid Methods of Typing..... 786
Pneumoperitoneum 208
Poison in Canned Goods..... 338
Poisoning by Wood Alcohol..... 243
Policy, New 21
Pollock, Lewis J.—Nervous and Mental Disabilities as Related to Efficiency 724
Pottenger, Francis Marion—Trends in the Development of Scientific Medicine 458
Poverty, Illness Chief Cause of..... 87
Practitioner's Diet Numbers..... 33
Practitioner, General 719
Pregnancy, Blood Chemistry in..... 552
Praises Japanese Medical Schools..... 490
Prejudice and Ignorance..... 179
Present Day Social Hygiene Problems—Lee Alexander Stone..... 832
Presidents of Societies..... 271
Preserving Human Sera for Transfusion Tests..... 721
Preventive, Era of, Medicine..... 146
Prevention Versus Repair..... 329
Price, George M.—Welfare Work in Japanese Electric Plant..... 235
Principles of Surgical Nursing—Frederick C. Warnshuis.268, Adv. 30
Proteins, Poisonous—Victor C. Vaughan.....530, Adv. 22
Principles of Human Physiology—Ernest H. Starling..... 708
Problem of Disease..... 395
Problem of Disease..... 638
Problem of the Nervous Child—Elida Evans..... 642
Progress of the Public Health Movement in the Year 1919..... 53
Prophylaxis and Treatment of Tetanus..... 25
Prophylaxis, Value of Typhoid.....262, Adv. 32
Protect Workers in Compressed Air..... 672
Psychoanalysis for the Missionary..... 392
Psychoanalysis Restated 655
Psychology of Industrial Life..... 727
Psychology of the Sick Child—A. Levinson..... 590
Psychology from the Standpoint of a Behaviorist John B. Watson .....468, Adv. 22
Psychosis of the War, Including Neurasthenia and Shell Shock—H. S. Marr.....88, Adv. 24
Public Health Center of Alameda County—Annie Florence Brown 566
Public Health and Insurance..... 737
Public Health and Cost of Living—Jules Schevitz..... 675
Public, Department of, Health Nursing..... 3
Public Health Movement in the Light of Modern Psychology Donald B. Armstrong..... 810
Public Health Notes from the Vosges Theodore C. Merrill..... 308
Public Health Nursing in Italy—Edna L. Foley..... 331
Public Health Work for Colored in the South—American Red Cross 817
Public Health Work for Rural Districts E. Marsh Williams..... 621
Public Health Survey of Prague, Czecho-Slovakia—Philip S. Platt 474
Public Health Surveys—Harold B. Wood..... 380
Public Health, Untilled Fields of—C.-E. A. Winslow..... 183

R

Race Stock and Mortality—Jules Schevitz..... 698
Radium Emanation, Injections of an Active Deposit of..... 352
Ramsey, Walter Reeve—Care and Feeding of Infants and Children 774
Rapeer, Louis Win—Health and the Rural School..... 703
Ravenal, Mazyck, Heads American Public Health Association..... 645
Reclaiming the Maimed—R. Tait McKenzie.....88, Adv. 24
Recollections, Rambling—A. D. Rockwell.....530, Adv. 24
Reconsideration of Cardiac Affections, A..... 23
Reconstruction of the Sick Child—A. Levinson..... 344
Recreation, Rural, and Public Health Nurses—E. C. Lindeman..... 631
Rector, Frank Leslie—Human Engineering A New Medical Specialty 133
Red Cross Clinic in Salonica..... 757
Red Cross at Geneva..... 439
Red Cross, To Direct..... 170
Red Cross Health Service Department, To Direct Dr. Edwin A. Peterson 92
Red Cross Activity—Health Centers..... 2
Red Cross Public Health Nursing—Stella Fuller..... 386
Red Tape, Medical 438
Re-education, Vocational, Mental Disorders and Eugene N. Boudreau 635
Reform From Within or Without..... 532
Refractometry 484
Rehabilitation in its Relation to the Physician—A. C. Burnham.... 93
Relation of the Medical Department to the Company—Henry Wireman Cook 142
Relationship Between Rural Recreation and Public Health Nurses E. C. Lindeman..... 631
Report, The Annual—Jules Schevitz..... 676
Report Occupational Diseases..... 368
Resnick, Louis—Growth of the National Safety Council Membership 368
Respiration Calorimeter and Its Possibilities, The..... 105
Restaurant Facilities for Shipyard Workers—Frederick S. Crum... 138
Resuscitation, Prone Pressure Method of..... 500
Retardation Among Children, Mental..... 336
Review of Disability in the Workmen's Circle—George Rubin and Joseph Baskin 730
Rewards for Medical Discoveries..... 553
Review of Recent Literature on Tuberculosis—John B. Hawes, 2nd 598
Right of Physician to Rate Himself Relative to His Professional Standing for the Purpose of Determining the Amount of His Fee—Leslie Childs 528
Right of Physician Selling Location and Practice to Resume Practice in Immediate Vicinity—Leslie Childs..... 86
Rines, Gertrude M.—Why a Public Health Nurse?..... 262
Roberts, M. J.—Nutrition Class for Working Children in Chicago 664
Robinson, Arthur—Cunningham's Manual of Practical Anatomy.. .....774, Adv. 22
Rock Dust, Breathing..... 240
Rochester Tonsil Clinic..... 626
Rocky Mountain Spotted Fever..... 207
Rodgers, W. W.—Westinghouse Lunch Club..... 610
Roentgenology, Major and Minor..... 415
Rose, M. Edgar—Personal Hygiene Demonstration..... 678
Ruhin, George—Disability in the Workmen's Circle..... 730
Rupe, Wayne A.—Health in Acute Infectious Diseases..... 210
Russell, W. A.—Medical Inspection in Big Horn County, Montana 159
Russia Combats Hunger and Disease..... 697

S

Safety Council Committee Studies Dermatoses..... 150
Safety Council Convention..... 593
Safety Council, Physicians Confer with..... 644
Safety Codes Formulation of New..... 230
Safety Fundamentals 339
Saliva-Borne Infections—James G. Cumming..... 502
Samaritan Quarter for Housing and Employing the Semi-Invalid—S. Wachsmann 326
Sanitary Lapses 581
Sanitarian's Definition of a Living Wage—Donald B. Armstrong.... 96
Sanitation and Pellagra Incidence..... 733
Schaeffer, J. Parsons—Nose, Paranasal Sinuses, Nasolacrimal Passageways and Olefactory Organ in Man..... 838
Schevitz, Jules
The Annual Report..... 670
Are We Controlling Venereal Disease?..... 507
Automobile Fatalities in the United States..... 156
Bad Housing and Ill Health..... 157
Barbershop Dangers 677
Biology of Public Health Problems..... 304
Change in Name, A..... 677
Conjugal Tuberculosis 676
Food Restriction and Mortality..... 304
Infant Mortality in Saginaw, Mich..... 156
Occupation and Tuberculosis 698
Poisoning by Wood Alcohol..... 243
Public Health and Cost of Living..... 675
Race Stock and Mortality..... 698
School Medical Supervision in Framingham..... 243
What Are the Duties of the Private Health Agency?..... 242
Schloss, Oscar M.—Transactions of American Pediatric Society... .....708, Adv. 22
School, Vocational, for the Tuberculous..... 513
School to Be Memorial, Medical..... 52
School Feeding and Malnutrition..... 699
Schwab, Sidney I.—Influence of War on Concepts of Mental Disease and Neuroses..... 192
Science of Eating—Alfred W. McCann.....88, Adv. 26
Science an Essential Commodity..... 91
Science and Industry..... 377
Science, Public Interest..... 710
Science to Raise Life Limit..... 71
Searle, Alfred B.—Use of Colloids in Health and Disease..... 708
Selby, C. D.—Standardized Surgical Methods in Industry..... 360
Series of Consecutive Clinical Demonstrations and Lectures, A—Frank Smithies 88
Sense About Climate, Common—Charles Henry Lerrigo..... 738
Service Department of R. K. LeBlond Machine Tool Co.—Sanford De Hart 365
Service of the Dispensary..... 254
Service of Illinois State Institutions Under New Code—A. L. Bowen 17
Service Under the Massachusetts Compensation Act, Medical—Francis D. Donoghue..... 803
Service, Social, Among Children—A. Levinson..... 411
Shell Shock in the Great War, So-Called—Tom A. Williams..... 121
Sherbon, Florence Brown—Kansas Health Car "Warren"..... 315
Shock and the Shockless Operation Through Anoci-Association, Surgical—George W. Crile.....838, Adv. 22

Shuttleworth, G. E.—Mentally Deficient Children.....268, Adv. 22
Silver Salversan Sodium..... 482
Skin Grafting, Tubed Flap in..... 359
Skinner, E. H.—Heliotherapy Natural and Artificial..... 487
Sluder, Greenfield—Concerning Some Headaches and Eye Disorders of Nasal Origin .....340, Adv. 22
Smallpox, Must We Prepare for a Pandemic of?—Walter C. Allen 571
Smithies, Frank—Clinical Demonstrations and Lectures..... 88
Smith, John F.—The Child Who Dwells at the Head of the Hollow 690
Smith, Allen J.- Infection, Immunity, and Specific Therapy..... .....468, Adv. 22
Solensten, R. T.—Choosing the Industrial Nurse..... 437
Solomon, Harry C.—Social Workers for Mental Hygiene..... 465
Southard, Elmer E., of Harvard..... 181
Spirochaeta Pallida, Spread of..... 722
Spruit, Charles B.- Saliva-Borne Infections..... 502
Stain, Benzidin-Polychrome, for Blood..... 416
Stain for Frozen Sections..... 533
Standardize Hospital Records..... 524
Standardized Surgical Methods in Industry C. D. Selby..... 360
Standardizing Bacterial Suspensions..... 207
Standards of Public Maternity Care—Hugo Ehrenfest..... 27
Stanton, James M.—Epidemic Encephalitis..... 353
Starling, Ernest H. Principles of Human Physiology..... 708
State and Future of Medical Practice—Sir George Newman..... 766
Statistics of Sickness in Industry..... 406
Statler, E. M.—Medical Service in Hotels..... 102
St. Francis Country House for Convalescents at Darby, Pa..... 346
Stock-Taking of Great Britain's Health..... 384
Stomach, Disorders of, Autonomic Nervous System and—Homer Wheelon 283
Stone, Lee Alexander—Present Day Social Hygiene Problems.. 763, 832
Strode, George K.—Medical Inspection of Schools in Pennsylvania 758
Studies in Experimental Diabetes 416
Studies in Thymus Function—Adrien Bleyer..... 601
Study of Dispensary Patients..... 770
Subgrouping of a Species of Bacteria..... 483
Sugar Cholesterol, Uric Acid and Albumin, On..... 22
Supervision of Institutions of the Health Department of New York City—Frank J. Monaghan..... 76
Surgeon's Part 558
Surgery and Diseases of the Mouth and Jaws—Vilray Papin Blair .....268, Adv. 26
Surgery, Endows Chair in..... 9
Surgery, Military Ophthalmic—Allen Greenwood and G. E. De-Schweinit and Walter R. Parker.....774 Adv. 22
Surgery, General and Operative, Modern—John Chalmer DeCosta.. 339
Surgery, Orthopedic and Reconstruction—Fred H. Albee..268, Adv. 24
Surgery in Its Relation to Workman's Compensation Laws, Traumatic—Raphael Lewy 298
Surgical Operations, Textbook of—Fedor Krause..... 642
Survey, A Hospital and Health—Howell Wright..... 160
Survey of the Nursing Problem, A..... 554
Swashbuckling Leadership 90
Symptoms in the Diagnosis of Disease—Hobart Amory Hare..... .....642, Adv. 22
Syphilis—Henry H. Hazen..... 530
Syphilis and Public Health—Edward B. Vedder..... 178
Syphilis, Treatment of—H. Sheridan Baketel.....708, Adv. 22
Systems of Medical Service—John Wilson Mowell..... 802
Surgery, A Treatise on Orthopedic—Royal Whitman.....268, Adv. 22

T

Taft, Jessie—The Neurotic Girl..... 163
Talbot, Fritz B. Diseases of Nutrition and Infant Feeding..... .....340, Adv. 22
Taylor, Henry Ling—American Posture League—Its History, Work and Future 717
Testing Drugs Safeguards Lives..... 413
Tetanus, Prophylaxis and Treatment of..... 25
Tetanus, War Record of—Walter C. Allen..... 611
Textbook upon the Pathogenic Bacteria and Protozoa for Students of Medicine and Physicians—Joseph McFarland.....530, Adv. 22
Textbook of Physiological Chemistry—Olof Hammarsten..340, Adv. 22
Textbook of Urology in Men, Women, and Children—Victor Cox Pedersen 178
Thalhimer, William—Wassermann Test..... 417
Therapy, Occupational and Vocational Guidance for the Tuberculous—H. A. Pattison..... 10
Therapy, Serum in Pneumonia..... 129
Thomson, Alec N.—New Jersey Venereal Disease Bureau Uses Novel Publicity Methods..... 735
Thromboplastic Agents 207
Thymus Function—Adrien Bleyer..... 601
Tobey, James A. Contributions of Laymen to Medical Science.... 272
Tomorrow's Health Doctor's Dilemma Theodore J. Werle..... 322
Tonsil Clinic at Rochester, N. Y..... 626
Toxicology, Industrial 663
Toxins and Antitoxins of Bacillus Dysenteriae Shiga..... 206
Toxin Streptoleukocidin 722
Trachoma in the Camps and Hospitals of the Army—Burton Chance 60
Trade Union Disability Insurance—Boris Emmet..... 250
Training, Bedside, for Physicians..... 115
Transfusion in Blood Stream Infections..... 596
Transfusion, Blood Volume Determined by..... 483
Transfusion, Preserving Human Sera for Tests..... 721
Treatment, Dictionary of—Sir William Whitla..... 774
Trebilcock, Frank C.—Eye Injuries..... 46
Trends in the Development of Scientific Medicine—Francis Marion Pottenger 458
Trends in Medical Practice—Frank B. Wynn..... 827
Treves, Sir Frederick—Surgical Applied Anatomy..... 268
Tuberculosis, Age Incidence of..... 806
Tuberculosis Among Women Workers.....468, Adv. 26
Tuberculosis, Argument for a Broader Attack on the Problem Joseph Herzstein 441
Tuberculosis Association: What It Is and What It Does Philip P. Jacobs 711
Tuberculosis, Bacilli from Human..... 352
Tuberculosis, Broadening the Attack upon..... 378
Tuberculosis in Cleveland Survey of Immediate Needs—D. B. Armstrong 510
Tuberculosis, Complement Fixation in Diagnosis of..... 207
Tuberculosis, Conjugal—Jules Schevitz..... 676
Tuberculosis, Feeble-Mindedness and 824
Tuberculosis, General Hospitals and..... 405
Tuberculosis, Specialists Visit, Hospitals.....848, Adv. 36
Tuberculosis, International Conference .....708, Adv. 36
Tuberculosis of the Lymphatic System—Walter Bradford Metcalf... 178
Tuberculosis in Massachusetts .....88, Adv. 32
Tuberculosis, Occupation and—Jules Schevitz..... 698
Tuberculosis, Plan to Stimulate the Family Physician in the Diagnosis of—L. J. Moorman..... 313
Tuberculosis, Practical Application of Immunity in—W. H. Watterson 152
Tuberculosis, Pulmonary—Maurice Fishberg.....268, Adv. 30
Tuberculosis Rate in Saskatchewan.....708, Adv. 34
Tuberculosis, Review of Recent Literature on—John B. Hawes, 2nd 598
Tuberculosis, Sociological Phases of the Problem in Children—A. Levinson 539
Tuberculosis, World-Wide Fight on..... 745
Tumor, Localization of Brain..... 415
Turnbull, Arthur—Life of Matter.....268, Adv. 22
Turner, John A. Industrial Medicine as Related to Efficiency.... 668
Typhoid, Detection of Carriers—F. M. Meader..... 244
Typhoid Fever and Its Sources in Massachusetts—Stanley H. Osborn 618

U

Ulcer, Gastric 205
Under-Graduate Instruction in Infirmaries..... 328
Unfit Men Cost Millions..... 438
Unity in Social Work 742
Use of Colloids in Health and Disease—Alfred B. Searle..... 708

V

Validity of Contract to Furnish Patient Medical Services for Life—Leslie Childs 172
Vaughan, Victor C.—Poisonous Proteins.....530, Adv. 22
Vedder, Edward B. Syphilis and Public Health..... 178
Viruses, Recent Investigation in Filterable..... 107
Visual Losses of One Eye..... 362

W

Wachsmann, S.—Samaritan Quarter for Housing and Employing the Semi-Invalid 326
Wadsworth, Augustus B. State Laboratory Work in New York.... 54
Wallgren, A. B.- Bacteriology in Abstract.....530, Adv. 22
Walker, Robert C.—Simple Goiter A Public Health Problem..... 124
War Contributions to Industrial Surgery- Stanley R. Maxeiner... 231
Warning to Employers of Industrial Nurses..... 574
Warnshuis, Frederick C.—Principles of Surgical Nursing..268, Adv. 30
War's Effect on French Children..... 338
Wassermann Test- William Thalhimer..... 417
Water Loss in Summer Diarrhea..... 484
Waters, Ernest E.—Diabetes .....340, Adv. 24
Watkins, J. A.—The Experience of the Medical Department at Nitro, W. Va.....293, 370, 432, 494, and 556
Watson, John B.—Psychology from the Standpoint of a Behaviorist .....468, Adv. 22
Watterson, W. H.—Practical Application of Immunity in Tuberculosis 152
Watts, Harry A.—Ocular Work of the Hood Rubber Co..... 49
Webb, Gerald B..... 470
Webster, Ralph W.—Diagnostic Methods..... 708
Weintraub, S. A.—Influenza and Pregnancy..... 219
Welfare Work in a Japanese Electric Plant—George M. Price... 235
Werle, Theodore J.—Tomorrow's Health- The Doctor's Dilemma... 322
Westinghouse Lunch Club—W. W. Rodgers..... 610
Whale, H. Lawson—Injuries to the Head and Neck..... 642
Wheelon, Homer—Automatic Nervous System and Disorders of the Stomach 283
White, Park J.—Chorea Minor..... 788
Whitla, Sir William—Dictionary of Treatment..... 774
Whitman, Royal—Treatise on Orthopaedic Surgery.....268, Adv. 22
Wile, Ira S.—Health Class Idea..... 746
Williams, E. Marsh—Public Health Work for Rural Districts..... 621
Williams, Tom A. So-Called Shell Shock in the Great War..... 121
Wilson, Marsha—Central Council for Nursing Education..... 392
Winslow, C.-E. A.—Untilled Fields of Public Health..... 183
Winton, Andrew L.—Course in Food Analysis.....340, Adv. 22
Winton, Andrew L.—Food Inspection and Analysis.....530, Adv. 24
Wisconsin Welfare Workers Association—Miss Mary LaRue..... 454
Wise, Walter D.—Hemiplegia—Spontaneous and Traumatic..... 200
Women Seek Careers in School of Occupational Therapy—Margaret Neall 170
Wood, Mrs. Ira Couch Nutrition Classes in the Chicago Schools.. 388
Wood, Harold B.—Public Health Surveys..... 380
Woodman, Alpheus G. Air, Water and Food..... 268
Woodrow, Herbert—Brightness and Dullness in Children..... 774
Word for Empiricism and the Past..... 1
Workers, Social, for Mental Hygiene—Harry C. Solomon..... 465
Wound Infection in Industry Drury Hinton..... 431
Wright, Howell—Hospital and Health Survey..... 160
Wynn, Frank B. Trends in Medical Practice..... 827

X

X-ray Localization of Foreign Bodies..... 551

Y

Yellow, Etiology of, Fever..... 24
Yellow, New Research on, Fever..... 652
Y. W. C. A. Health Conference..... 87

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors Alexander Lambert, M. D., S. S. Goldwater, M. D., *and* John A. Lapp, LL.D.
Managing Editor John A. Lapp
Editorial and Business Offices, 58 East Washington Street, *Chicago*

Volume 2. JANUARY, 1920 Number 1

NOTES AND COMMENT

A WORD FOR EMPIRICISM AND THE PAST

THERE is a tendency towards nihilism in therapeutics. The present generation is not content to keep an open mind with respect to methods which are not based on strict scientific evidence. Even a healthy skepticism will not satisfy it. It calls for the abandonment of all empiricism, and the professional excommunication of those who use its methods.

Yet, when we compare the therapeutic methods that we owe to empiricism with those with which experimental pharmacology has endowed us, the latter group is pitifully small in proportion with the amount of enthusiasm it arouses. Think of what we owe to empiricism: our only undoubted natural specific, quinin; iron in chlorosis; mercury in syphilis,—to name only three of our most valuable drugs.

This is not said in disparagement of experimental pharmacology, or of its distinguished exponents. The latter are not to be found among the fanatical decriers of empiricism. Experimental pharmacology has already done good work; it is called upon to play, in the future, the leading rôle in drug therapy. But it has not yet learned what are the least misleading means of research; the field that it has explored is small and the results provisional.

The discovery of the cause of malaria dates back less than forty years,—a long time ago, almost medieval, to the recent graduate, but only a short time in the history of medicine. Had the rigid methods of experimental pharmacology been applied to the use of quinin before Laveran's discovery, we make bold to say that our nihilistic friends would have classed its supposed specificity as an old wife's tale. Quinin is of doubtful utility as a febrifuge; its febrifuge action is not specific. Malaria is characteristically intermittent; it has capricious remissions and relapses, with or without treatment. The laboratory evidence pertaining to it would have been negative; the clinical, unconvincing.

Experimental pharmacology has now confirmed the empiricism of the Peruvian Indians. It would have been hard put to it to do so before the time of Laveran.

In Curzon's fascinating "Monasteries of the Levant," which gives a vivid account of the near East in the early thirties of the nineteenth century, there is a passage in which he pours scorn on the precautions taken by persons in Egypt to avoid infection, moved by the absurd idea of contagion. Much more recently a great explorer, still living, qualified as a ridiculous superstition the belief of certain African natives that fever was brought by the bite of certain gnats.

It has been characteristic of all peoples to estimate at the highest value the achievements of their time. We are all tempted to believe that we are living, if not at the apex, at any rate very near that point in the accumulation of human knowledge. We are told that about 1830 a Patent Office clerk resigned on the ground that there could not be many more inventions made. Though the superiority of the decimal over the duodecimal system of arithmetic was admitted, the latter was maintained at the time of the French Revolution because it was believed that the existing treatises and tables filled all the mathematical needs of the human race.

A recognition of the probability that future

generations will look on us as living in an unlightened age should make us more modest in our attitude toward the past. There are often new truths to be dug out of old wives' tales.

HEALTH CENTERS: A FIELD FOR RED CROSS ACTIVITY

TO the average layman the American Red Cross formerly appeared to be wholly concerned with emergencies. He was more familiar with its beneficent work in great catastrophes than with any other of its activities. Now, however, when he thinks of the Red Cross, there is brought to his mind not only these dramatic interventions, but also the steady striving for child welfare and intensive anti-tuberculosis campaigns.

The American Red Cross has put in the forefront of its peace time program activities in the field of public health. Definite proposals in execution of this laudable policy are contained in a twenty page pamphlet entitled "Health Centers: Field for Red Cross Activity."

What is a health center? A health center is defined as "the physical headquarters for the public health work of a community." In it, under one roof, all activities, public and private, for the amelioration of the public health would find a common meeting ground. It would, therefore, be the coordinating center of community health work. But it is clear that the Red Cross means much more than this by "Health Center," for in the pamphlet the following activities, among others, are laid down as normal functions of such centers: tuberculosis clinics, prenatal clinics, venereal clinics, mental hygiene clinics, dental clinics, out-patient clinics for the local hospitals, medical society meetings, and laboratories,—all this in addition to the work having its headquarters at the center and its field elsewhere.

The conception is certainly ambitious, not, however, impossible of realization. As the pamphlet is read one seems to see the scope of the idea enlarge before him as the writer warms to his subject.

Cooperation of the closest kind between volunteer health activities and the public health authorities is regarded as one of the aims of and one of the natural consequences to the proper operation of a health center. It is clear that the author of the pamphlet looks upon the health center as one of the most important stimuli to efficient work of the public authorities, under whom, when they rise to the desired level of efficiency, all such work will eventually come. In this connection Doctor Farrand has said: "Without in the slightest degree grasping or usurping the field of any other organization we can get behind these bodies and insert a new kind of cement, a new kind of binding material, that will hold them together so that they will find that they are forming one great forward movement for the welfare of the country."

This is the second field of activity in the amelioration of public health conditions, the first being the admirable work of the Department of Nursing. The team work of the public health nurse, the health center, and the public authorities cannot fail to produce an immense improvement in health conditions throughout the country.

The appropriateness of the Red Cross as the source of inspiration and as the uniting factor for such work will scarcely be disputed. Its widely representative character, its impartial attitude towards all parties and groups in the community, and its world-wide reputation for achievement leave it without a competitor. Whether the health center, *i.e.*, the building housing it, be owned by the Red Cross or not, will be a matter to be decided for each case on its merits. But the use of Chapter funds for the construction, equipment, and operation of such centers, or for contributions thereto will be officially authorized as a legitimate Red Cross expenditure.

The Public Health Officer of the community, backed up if necessary by the district or headquarters representative of a state health department, should be expected and encouraged to take the lead in bringing together the various officers in planning and developing a health center. If for any reason this is not now practicable, the voluntary health agencies of the community may well take the initiative for the coordination of the health work in the manner suggested. Every legitimate group working in the interests of public health should be invited to participate.

Before beginning the work, a community survey is urged, and advice from the Division Office should be obtained. Certain familiar Red Cross activities which are already established can well be brought into the new health center. Such functions are the public health nursing, the classes in elementary hygiene, home nursing, dietetics, and first aid. Again, in the case of a local disaster the health center may prove of inestimable value in furnishing a relief headquarters already equipped in many essentials of supplies and personnel.

The relationship of the health center to the Junior Red Cross and to the public schools is also taken up in the pamphlet.

A special building is desirable but not essential, and the health center is especially urged as a

most fitting war memorial. Modern civic pride demands appropriate and dignified housing of libraries, courts, and schools. This attitude should now be extended to other governmental functions, especially to the work of the health department.

The health center serves as a clearing house for public health information and offers opportunity to coordinate all the public and private activities of the community. If the health center in a small community begins only as a bureau of information, it performs a useful task. The Red Cross can make no better beginning in its health work than by providing a headquarters known to the whole community as the place where information may be had promptly, as to the medical, nursing, and hospital facilities available in an emergency. How a local chapter may proceed in establishing a health center is described in the last few pages of the pamphlet.

In turning gradually from its war activities to peace and to thoughts of the work to be done at home, the American Red Cross has consecrated itself anew to its ancient and endless task of preventing and relieving distress and suffering.

A DEPARTMENT OF PUBLIC HEALTH NURSING

BEGINNING with the March issue, MODERN MEDICINE will carry a department of nursing which will be conducted in cooperation with the National Organization for Public Health Nursing, with Katherine M. Olmsted, secretary of the Middle Western office, as editor. We believe that through this department our readers will be enabled to tie up modern health cativities with the machinery of investigation and achievement, and that it will afford definite help in recognizing and in providing for their individual problems.

In Miss Olmsted a particularly happy choice has been made for the editor of this department. Graduated in 1912 from the Johns Hopkins Training School for Nurses, she was first associated with the staff of the Baltimore Instructive Visiting Nurse Association, for which Association she later made a special survey on causes of blindness, and the care of the blind. The social service in the wards of the Johns Hopkins Hospital which she instituted brought her in close contact with the charity and health agencies of Baltimore. She did pioneer work in Illinois in the development of rural nursing service.

For two years Miss Olmsted was connected with the Wisconsin Anti-Tuberculosis Association as state supervising nurse and director of the course in Public Health Nursing made possible by the close affiliation with the extension department of the University of Wisconsin. This position made it possible to study and assist greatly the actual development of Public Health Nursing in both rural and town work by means of personal contact and through the publication of frequent bulletins for nurses.

As a Red Cross Nurse Miss Olmsted was sent with one of the first units to the war zone with a special commission composed of experts in public health, sanitarians, and sociologists to make a study of health conditions in Roumania. While in war service Miss Olmsted started Public Health Nursing and conducted clinics and an outpatient department from a military hospital for the women and children along the eastern front under most horrible and uncertain conditions in the devastated, starving, typhus-stricken areas among the Russians, Roumanians, and Armenians. After her return to America, Miss Olmsted became a secretary of the National Organization for Public Health Nursing, and during the last year has started and directed a western office for the greater stimulation and extension of Public Health Nursing throughout the West and Middle West.

Three demonstrations of Public Health Nursing in three distinct types of rural counties have been started and directed by Miss Olmsted for the Federal Children's Bureau in an effort to promote better care of mothers and babies in rural sections and to discover if possible (1) what is the legitimate scope of activities of public health nurses in rural counties where services are maintained by public and private funds; and (2) how can funds be secured in the average rural county to finance an efficient, adequate public health nursing service. By experience and present activities she is particularly well fitted for the work she has undertaken with this magazine.

THE WORKING DAY

EULOGIES addressed to the Germans have not been a conspicuous feature of our newspapers of recent years; yet when, a few weeks ago, it was announced, with what authority we know not, that the German workmen had decided on a ten-hour working day, their decision was acclaimed with fulsome praise and their attitude contrasted with that of our own workmen to the disadvantage of the latter. Cartoons showed the industrious Teuton hard at work to increase production and to decrease the cost of living, while the American stood idly by.

The assumption that in a year made up of long working days the output would necessarily be greater than in one of short working days is

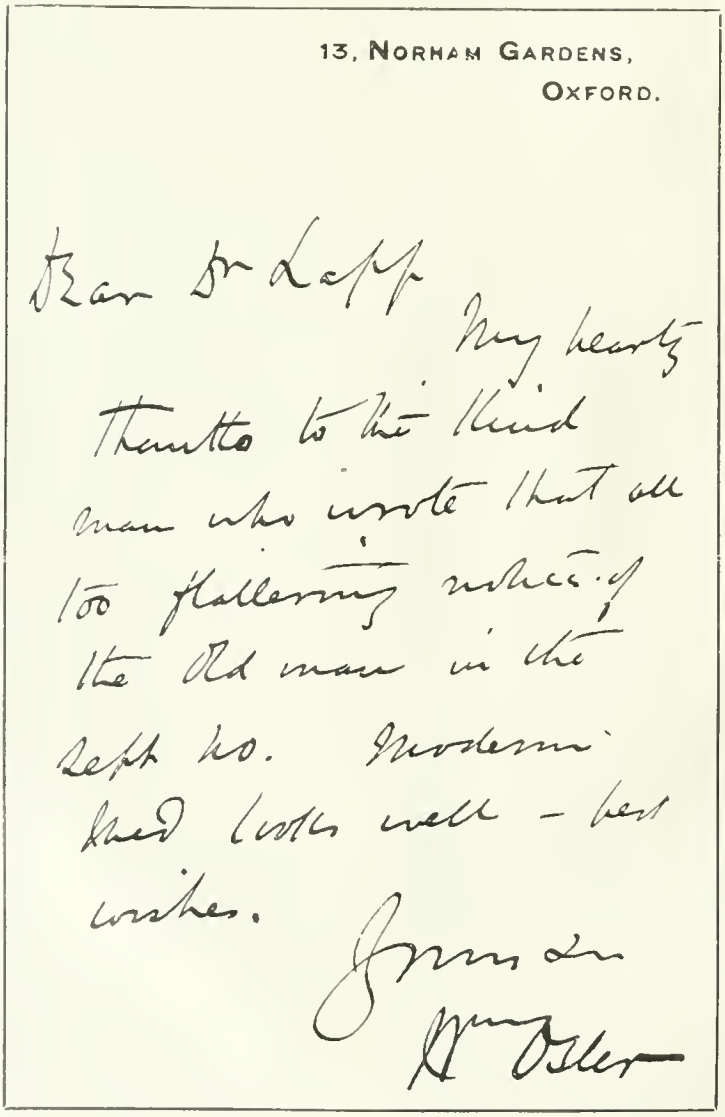
notoriously false. It is true that, for relatively short periods, especially under strong incentive, the longer day gives the larger output. But it is known that there is a reaction in this latter case and that, if an attempt is made to continue the "drive," the result will be a lowered output combined with a deterioration often amounting to a complete breakdown of the human machine. Nor is the incapacity necessarily temporary; it is sometimes permanent and usually obstinate. Of the ill effects on working capacity we have had only too serious an example in the person of the Chief Magistrate of the Republic.

Data have been collected, especially by the British Health of Munition Workers Committee, whose analysis leads to the conclusion that the upper limit of the efficient working day is, for most industries, not greater than eight hours, while for many it is certainly less. By efficient working day we mean the day which gives the maximum output while permitting complete recuperation during the hours of rest.

We cannot afford to treat our labor as we are said to treat our machines, —work it to full capacity until it is worn and then scrap it. We must conserve labors and to this end we must look to the output, not by the day, but by the lifetime. The arrival in this country of Lord Leverhulme, who is so well known as the advocate of the short day, has caused a movement of interest in the daily press. His position as one of the greatest employers of labor in the United Kingdom, as the founder of a manufacturing business which has become the largest of its kind in thirty years, lends a weight to his views which is regarded with apprehension by the long hour advocates. There is little room for sentiment in cost accounting, even for the sentiment of self-satisfaction in justifying one's attitude. It is therefore evident that employers would not attempt to enforce longer hours if they were convinced of the greater economy of shorter days. If the professional advisers of employers will bring to their notice the results of recent investigations on industrial fatigue,[1] the employers will meet the demand for shorter hours.

SIR WILLIAM OSLER DIES ABROAD

SIR WILLIAM OSLER, physician, scientist, and author, died December 29, after an illness of several weeks at his home in Nordham Gardens, Oxford, England, aged seventy years. He was born in Canada and received his medical degree from the McGill University, Toronto, in 1872. He was well known in the United States, having been professor of medicine at the University of Pennsylvania, and at the Johns Hopkins University, Baltimore, from 1884 to 1904. He resigned the latter position to become regius professor of medicine at Oxford, the highest honor in the bestowal of British institutions of learning. He was the author of many books of medical research and of philosophical studies, and his fame as a joker and as an epigrammatic and witty member of society was widespread. It was in 1905 that Dr. Osler in an address spoke of the "comparative uselessness of men above forty years of age," a remark which went round the world.



13, NORHAM GARDENS,
OXFORD.

Dear Dr Lapp

My hearty thanks to the kind man who wrote that all too flattering notice of the Old man in the Lesk Mo. Modern Med looks well — best wishes.

Yours ever
W Osler

Facsimile of letter written by Dr. Osler shortly before his death to the editor of MODERN MEDICINE, under date of November 3, 1919.

[1] A valuable bibliography of recent literature on industrial fatigue is published in *The Journal of Industrial Hygiene*, May, 1919, as Part III, Appendix VIII, of an article by R. A. Spaeth on "The Problem of Fatigue."

THE UNDERLYING CAUSES OF THE NARCOTIC HABIT

By ALEXANDER LAMBERT, M.D., New York*

TO understand the underlying causes of narcotic addiction one must go deeply into the personality of each individual. Social customs permitting the use of certain narcotics in moderation have covered over the real causes why these same narcotics are used to excess.

Most people think of drug addicts and drunkards as a class and mass of humanity, but, unless they are taken as individuals and their individual problems studied, the underlying causes of their excessive indulgences in narcotics will never be understood.

PERSONALITY AND DRUG ADDICTION

The control of narcotic drugs and the care of those addicted to their use are properly public health measures, and depend for their ultimate solution largely upon the case with which patent medicinal nostrums are available to habitués.

The underlying cause of drug addiction is to be sought for in the psychology of a personality unable or unwilling to face individual problems; difficulties, disappointments, or defeats call for an anodyne to bolster up the ego, or to afford escape from painful experience. Solve the personal problem, and the individual is freed from the need of narcotic forgetfulness.

The Use of a Social Stimulus

For centuries alcohol has been interwoven with our social customs to such an extent that it is difficult for us to think in terms of hospitality and leave out the use of alcohol. This fact as much as any other has tended to over-shadow and hide the real reasons for over-indulgence in alcohol.

In this contribution there is no intention to deliver a thesis on alcohol or alcoholic indulgence, but drug addiction cannot be understood unless it is coupled with the knowledge of alcoholic intoxication and the fact realized that the excessive use of both opium derivatives and alcohol is often for the same purposes, and frequently exerts the same effects on personality. In youth it is for the inflation of personality and the endeavor to feel and enjoy life more abundantly. In later years of life it is usually to forget things that one is unwilling to face or cannot face in consciousness, as if something must be found to benumb the mental suffering. From time immemorial all nations have sought something to help celebrate their joys, or something wherewith to cut the keen edge of sorrow.

Let us consider first what are the effects o these different drugs on the human organism. Alcohol first paralyzes the judgment and inflates personality; that is, as the judgment atrophies the self-conceit hypertrophies. Difficulties diminish or vanish; physical and mental enjoyment of life is greatly intensified. As the paralysis of mental function continues and increases there is approached the stage of perversion and stupid distortion of mentality and, finally, forgetfulness and obliteration of consciousness. All this is familiar in the early exhilaration by alcohol, and later the narcotic stupefaction. Cocain is not a narcotic, but is a pure exhilarator; it stimulates the mental and physical functions; it intensifies the accuracy of the senses and the mental enjoyment of them. It renders the senses not only more alert, but intensifies the rapidity of the physical response to action, so that men think and act more quickly. It distorts the judgment, blunts the sense of proportion, and destroys the ethical and moral sense. It produces a contented certainty of mind that all one dreams and hopes for will surely come to pass.

Cocain Destroys Ethical Sense

Among the early symptoms of its poisoning are ideas of persecution and suspicions in resentment against which the cocainist is quick to act. The cocainist is prone to carry weapons to defend himself against imaginary injuries or persecutors and is therefore a menace within his environment, especially as increased liability to act is coupled with distorted judgment and blunted sense of responsibility. The intensity of the action of cocain has its equal reaction in the intense nervousness and depression of its deprivation. The further excessive use does not produce sleep or a narcotic action as alcohol. There is no narcotic action in cocain.

Heroin is not an alkaloid found naturally in opium, but is built up synthetically from substances found therein Its effect is to inflate personality, giving the exaggerated sense of egotistical importance, soothing hurt feelings and disappointments, and benumbing judgment. It acts

*Read before the New Jersey Sanitary Association, Lakewood, N. J., December 5, 1919.

similarly in many ways to cocain; while its action is not so intense, neither is its reaction and depression so distressing. Its effects last longer than cocain, and the dose does not have to be so often renewed. It does not produce the mental de-

Miss Sara Graham Mulhall, deputy commissioner of the New York State Narcotic Commission, toward whom attention has been directed for the work she has done in arousing public sentiment against the drug evil. (Photo by Underwood & Underwood, N. Y.)

generation and distortion with delusions of persecutions as cocain, but it does relieve pain and bring on narcotic sleep and forgetfulness when taken in doses beyond the stimulating amounts.

The stimulating and pleasing effects of small doses of morphin, its ability to relieve physical pain or mental suffering, and the degenerating and narcotizing effect of its continuous use are too well known to need repetition here.

Addiction Easily Established

From whatever cause the habit of taking these drugs may originate, it is the continued use over a certain length of time of small doses which produces the habit or addiction. Given a group of persons in health, or sick with some disease, who take small doses of these drugs for three or four weeks continuously, and the majority will be unable to cease taking them should they desire to break off. The deprivation from their accustomed dose will produce such physical suffering and nervous distress that the great majority cannot go through it and cease using their drug. Probably a greater number of those who were using the drug because of disease will succeed in breaking away from it than of those who began using it for causes other than disease or pain.

Alcohol, cocain, and heroin are the drugs, therefore, which attract mankind in the years of his youth and excessive indulgence is based on the desire to feel and enjoy life and its sensations more intensely and more abundantly. They are taken because of their power to inflate personality. In the years of youth, narcotism and forgetfulness are not sought, but the relief of strain, the soothing of hurt feelings and disappointments, the relief from the bitterness of being misunderstood. They are used to sustain personality in crises which, without them, there is dread of failure. They are used by the inadequate personality to lean upon for strength and encouragement when situations arise with which, unaided, the inadequate personality cannot cope.

A Reaction to Failure

One of the most frequent reactions to **failure** and disappointment in personalities lacking courage and fighting vigor, is a growing sense of inferiority. This, in the past, has been a common cause for over-indulgence in alcohol, for, by artificial inflation and an increased sense of swollen ego, relief was obtained. Cocain and heroin supply the same relief, and many instances of addiction are due to this often unsuspected cause.

Bad associates and evil environment are probably today the chief causes producing heroin addiction among the youthful habitués. The large majority of those addicted to this drug are below twenty-five years of age and certainly under thirty. As many small boys take to tobacco smoking because it appeals to them as a manly or grown-up thing to do, so do many youths, under evil environment, take to alcohol or to heroin. Moreover, an addiction to heroin could be hidden, while alcoholic indulgence could not, and the over-indulgence in heroin would seem more like physical fatigue and be less suspected.

Alcohol has had, from time immemorial, certain customs connected with its use which not only sanctioned its use, but defended and forgave excessive indulgence. These same customs covered over the real reasons why many men turned from moderation to the excessive use of it. The narcotic drugs have no such customs connected with their use in our civilization and the addiction to their excessive use has always carried with it a moral stigma. The stigma of moral degeneration, often undeserved and unjustly placed on the unhappy victim of the habit, has only in recent years begun to be removed. The more charitable point of view has extended to the victim of morphin addiction

more than to users of other narcotic drugs, because morphin is so often taken to relieve physical suffering. Few realize that nearly 80 per cent of the morphin addicts have acquired the habit from legitimate medication, sometimes wrongly used, but often, it is true, correctly and rightly given to relieve suffering. These unfortunate takers of morphin should not be classed as addicts; they usually have fallen unconsciously into a habit from which they cannot escape. If they have an incurable disease with suffering from pain, they should be given their morphin in doses sufficient to relieve it; but the giving of the drug should be carefully supervised, as all morphinists are prone to take more than they need through fear lest they may suffer. These patients should be franked by the health authorities, that they may obtain their drug in any state, without being imposed and preyed upon by unscrupulous persons.

Desire Narcotic Forgetfulness

The motives in life change after youth has passed, and in the early thirties social customs or early weariness of life are the most common causes of alcoholic excess and the underlying causes of all narcotic addictions begin to be more those of a desire for narcotic forgetfulness and less those of a desire for inflation of personality. The use of narcotics after thirty is in the majority of cases based on the inability to break off a previously acquired habit, or is a habit acquired because of disease or suffering from some injury. The usual drug is therefore morphin, though heroin may be used to allay pain.

As the age of the narcotic addict increases, so do we find an increase in the number of those who use the drugs to ease the weariness of life; to forget sorrow, ruined hopes, and lost opportunities. Alcohol in excess after forty, is usually used for its narcotic effect of blotting out some remembrance. Morphin is the usual addiction, though often in the rural districts one finds laudanum and crude opium the predominating form of the drug.

Through the kindness of Dr. S. Dana Hubbard, of the New York Department of Health, we are enabled to present herewith the statistics of 2,723 narcotic addicts, applicants to the drug clinic of the New York Health Department.

These statistics bear out the deductions of our previous experience. As one would expect in such a clinic, the group contains mainly the youthful addict of short duration of habit who has drifted into the addiction as a vice through evil association, using the drug characteristic of that type, *i.e.*, heroin. Of the 2,723 addicts 2,216 were men and 507 women. Of these 80.5 per cent were under thirty years of age, nearly one-third of the entire number being between twenty and twenty-five years of age, and about the same number of the total being native born Americans. Sixty-five per cent of the addicts took heroin alone, and 14 per cent added cocain to the heroin; 18 per cent took morphin. Nineteen and five-tenths per cent were over thirty years of age, and only 12 per cent had been addicted to their habit for more than ten years.

The underlying causes of addiction, as given in their own statements, were bad associates in 71 per cent; illness or relief of pain 18 per cent, and

STATISTICAL STUDY APRIL 10TH-JULY 1ST, 1919—NEW YORK DEPARTMENT OF HEALTH*

Borough Distribution		Sex Distribution		Age Distribution		Occupational Distribution		Racial Distribution		Nationality Distribution by Place of Birth	
Manhattan	1,379	Males	2,216	15-19 years	†725	Skilled (Trade or Profession)	‡1,643	Whites	2,338	American	850
Bronx	147	Females	507	20-25	841	Unskilled	1,080	Colored	385	English	8
Brooklyn	1,088			26-30	626					§Hebrew	511
Queens	35			31-40	427					Japanese	11
Richmond	27			41 plus	104					Polish	312
Out-Town	47									Swedish	7
Total N. Y. C.	2,723									Brazilian	3
										Dutch	2
										Italian	64
										Russian	117
										Chinese	39
										Scotch	4
										Canadian	60
										German	399
										Irish	210
										Greek	93
										Spanish	28
										West Indian	5

Drug Used		Reason Assigned for Addiction		Length of Time Using Drugs‖	
Heroin	1,878	Bad Associates	1,947	1-2 years	196
Morphia	495	Relief of Pain	174	2-3	248
Cocain	4	Illness	332	3-4	323
Morphin and Heroin	36	Excited by Curiosity	134	4-5	346
Morphin and Cocain	35	For Pleasure	11	5-6	347
Heroin and Cocain	277	Turned from Opium Smoking	75	6-7	371
		Family Trouble	19	7-8	300
		Financial Embarrassment	11	8-10	287
		Over-Work	10	10-13	124
		To Try to Do More Work	10	13-17	89
				17-20	38
				20 and over	54

*Total number of Narcotic Applicants, 2,723.

†80% under 30 years of age.

‡21% have to do with various means of transportation.

‖88% 10 years and under.

§Subdivision by divisional class subtracted from other nations.

only one per cent gave the reason for taking the drug as sorrow or other forms of trouble. In the article about to be published from which these statistics are taken Doctor Hubbard draws some further conclusions from his study of the situation in New York to-day. It is evident that the number of narcotic addicts has been enormously exaggerated and instead, as claimed by some, of comprising 1 per cent or 2 per cent of the population, it is probably not more than one-quarter of 1 per cent. The Harrison Law strictly applied in New York has produced but about 6,000 addicts, instead of the 100,000 or 200,000 as was claimed and expected. The exemption permitted under the law claimed by physicians for persons ill who must take their drug or suffer unduly, has been only 250. It is very noticeable, also that the physical condition of these addicts is usually not that of a narcotic morphinist—that of the thin, pale, cadaverous type of individual rather mentally dull, but the majority have been the younger, alert type which is seen in the stimulated class rather than the narcotic class. All these observations, therefore, confirm the domination of heroin in the addict of today.

Women drug addicts wait in the rain for hours for the anodyne which bolsters up the ego, or affords escape from painful experiences. (Photo by Underwood & Underwood, N. Y.)

Doctor Hubbard says that very many of these unfortunates are easily and quickly determined as showing feeble-mindedness which in young girls tends so strongly to prostitution.

Use of Narcotics Not Increasing

The question is often asked whether or not the present prohibition of alcoholic beverages will increase the other narcotic addictions. It seems to me doubtful if it does to any appreciable extent. Much will depend on the ease with which various medicinal nostrums are available, containing various percentages of alcohol and of narcotic drugs. The success of the present prohibition will depend in much larger measure than is usually realized, on the freedom permitted the patent medicine vendors to sell their wares. Many of these nostrums contain alcohol in amounts sufficient to cause acute and chronic alcoholic poisoning when used as continuously as recommended by the manufacturers. One serious defect of the Harrison Law is that it permits the sale of mixtures containing less than two grains of opium to the ounce. This permits the unrestricted sale of paregoric and similar medicines. Public opinion will doubtless remedy these defects when their full effect for evil is appreciated and will soon place the legal control of the enforcement of the narcotic laws and the care of the addicts under the state or municipal health departments, where it rightly belongs. Other temporizing experiments will be tried, but in the end the control of narcotic drugs and care of those addicted to their use will be treated as public health measures.

The customs surrounding the use of alcoholic beverages have been so interwoven with our ideas of social intercourse, goodfellowship, and hospitality that the parallel ceases between alcohol and other narcotics as soon as you leave the pathologic side of their effects on the body and consider the social side of their use. The abuse of

More than 3,000 victims of the drug habit have registered at the municipal bureau in order to get the artificial aid necessary in order that they may face existence. (Photo by Underwood & Underwood, N. Y.)

alcohol has long been condemned, but its ordinary use sanctioned. The use, even, of narcotic drugs, has always been condemned, except as medical means to relieve suffering, and their abuse still carries with it a stigma never possessed by over-indulgence in other substances. As already said, not only are there no social customs to sustain their use, but their use tends to anti-social rather than social results since they are used to escape and forget the responsibilities and duties of life and are the means by which the necessity to face the realities of life may be avoided.

Personality Studies of Drug Users

Over-indulgence in alcohol produces tissue changes in the various organs of the body and, if continued, these changes become permanent and progress until they themselves constitute disease processes. On the other hand, the excessive use of the narcotic drugs of opium does not produce tissue changes in the various organs nor cause changes which constitute disease processes. They do pervert the functions of various organs but, when the poisons are removed, the functions of these organs can be restored. The problem of the underlying causes of narcotic addiction lies in the psychology and personality of the individual, and so does the solution of the problem. If you can solve the individual problem which leads to the addiction, you will solve the means by which the individual can be freed from his addiction. The feeble-minded and inferior personalities are a separate group which need institutional and special care; but the ordinary addict, relieved of his drug and physical suffering, and cared for until he can face his existence without artificial aid, can be relieved of his addiction; and if his problem is solved, he will not go back to his narcotic.

Not infrequently a habit is continued after the original cause has ceased to exist, and the habit must be continued because of the physical suffering which unaided deprivation brings. Many addicts loathe their habit, but physically cannot break from it. Most of them when free are anxious to remain so. Hubbard's experience with the addicts under the Health Department sustains this view. He writes that "our experience seems clearly to indicate that the individual addict has only to be taken off his drug, and made bodily comfortable, and away from his old associates, and he will redeem himself. Off the drug and life's path made comfortable by suitable guidance, the addict, like every normal individual, faces his daily problems and can do so; but to stand alone requires after-care until he can feel at home in his new surroundings. This may take several months, but with such help redemption is sure."

This is a more optimistic view than is held by many physicians; but even among the medical profession the underlying causes of narcotic addiction are not generally understood. The under-

The control of narcotic drugs is indicated by the long line waiting at this municipal bureau, where reduced doses are administered which gradually lessen the hold of the habit. A separate entrance is provided for the women. (Photo by Underwood & Underwood, N. Y.)

lying causes of narcotic addiction are more personal than social. It may be summed up by saying the causes lie in youth in the desire to live more intensely and to dream of his future greatness. After youth has passed, they lie in the desire to forget the weariness of living and to blot out the remembrance of lost opportunities. They begin and end in the realm of personality.

AMERICAN MEDICAL SCHOOL IN PARIS

The establishment of the American Medical School in Paris, France, has been definitely decided upon. It will be entirely postgraduate in character and will be under the joint direction of American and French physicians.

ENDOWS CHAIR OF SURGERY

A chair of surgery with an endowment of $100,000 is to be established at the medical school of the Western Reserve University, Cincinnati, Ohio. The endowment is the gift of Dr. George W. Crile, chief of the medical staff.

COLORADO HAS TRAVELING DISPENSARIES

Two traveling dispensaries will be operated during the coming year by the Colorado Public Health Association for the benefit of citizens who are too sick or too isolated to secure the services of a physician. Remote settlements where there are no doctors and nurses will be especially benefited.

SIX-YEAR COURSE FOR CANADIAN

The medical course in the Western University, London, Ont., will be, with the opening of the 1919-20 session, six years except that those who matriculated and then left for overseas service will be on the five-year plan. The new plan is the same as that in force at Queen's and Toronto Universities.

OCCUPATIONAL THERAPY AND VOCATIONAL GUIDANCE FOR THE TUBERCULOUS

By H. A. PATTISON, Medical Field Secretary, National Tuberculosis Association, New York City*

THAT uncompromising apostle of Truth, John Ruskin, has said in an address on "War"[1], "It is an assured truth that whenever the faculties of men are at their fullness, they must express them by art; and to say that a state is without such expression is to say that it is sunk from its proper level of manly nature. So when I tell you that war is the foundation of all the arts, I mean also that it is the foundation of all the high virtues and faculties of men. . . . No great art ever rose on earth but among a nation of soldiers. There is no art among a shepherd people, if it remains at peace. There is no art among an agricultural people, if it remains at peace. Commerce is barely consistent with fine art, but cannot produce it. Manufacture is not only unable to produce it, but invariably destroys whatever seeds of it exist. There is no great art possible to a nation but that which is based on battle."

A NEW THERAPEUTIC FIELD

If in health, interest in one's work is essential, and adaptation of the work to the individual is a proper subject of study, how much more important to find rest for the enforced invalid through directed activity.

We have long been used to the idea of discipline through work, and of physical well-being through exercise, but it has remained for the vocational therapist to discover for us health through directed effort.

The Director of Occupation has chosen an important field, and one which involves initiative and a proper balance of therapy, psychology, and sociology.

The Arts as Adjuncts of Healing

Whether you agree with Ruskin or not, and he himself admits the inconsistencies of his reasoning on war[2], I am certain we shall all agree that out of this great war which has just ceased there has come a fine stimulus to the arts and the high virtues of men. That stimulus has been directed along numerous channels, not the least of which is in the development of the arts in the restoration of form and function to the human body. Never before have the arts, using the term in its broadest sense, contributed so largely to the service of medicine and surgery. In a more specialized sense "Arts and Crafts" have also become directly an indispensable adjunct of the art of healing.

This application of the arts and crafts we are calling occupational therapy. A lay-worker in the campaign against tuberculosis complained recently about the use of this term. "Why don't you," said he, "use a simpler term or explain what you mean." Let us then clear the ground for our discussion by defining occupational therapy. According to the Standard dictionary "therapeutics or therapy is the department of medical science that relates to the treatment and the action of remedial agents on the human organization, both in health and disease." The remedial agent may be drugs, water, climate, massage or exercises. My notion of occupational therapy is mental or physical activity definitely prescribed and guided for the specific purpose of contributing to and hastening recovery from the effects of disease or injury. Unless prescribed to promote recovery the activity is not therapy; indeed, unless wisely prescribed and properly guided it may contribute to death and not recovery.

The supervisor of reconstruction in one of the large army hospitals pointed out to me one of the cases of heart disease who was so absorbed in the task he was given that his face became livid. This supervisor seemed not at all to realize that the man was getting an over-dose of medicine just as surely as if he were made delirious by too great a dose of the tincture of digitalis.

Occupational therapy may be divided into three parts which are practically three stages in its remedial application:

1. Diversional therapy, in which simple amusements, such as games and puzzles, are used to occupy the fingers and divert the mind.
2. Occupational or handicraft therapy, in which definite tasks are assigned, involv-

*Read before the National Society for the Promotion of Occupational Therapy, at Hull House, Chicago, September 8, 1919.

[1] Ruskin, John: War The Kelmscott Edition, Vol. 13.
[2] Ruskin, John: Notes on Political Economy of Prussia, dem.

ing the doing of useful things with woods, beads, textiles, clay, metals, etc., for the purpose not only of occupying the mind, but of assisting in the restoration of lost or weakened function.

3. Pre-vocational training, in which the prescribed remedial agents are employed for the distinct and studied purpose of leading up to definite education and training for some industry, trade, or profession.

Vocational education is a further stage in rehabilitation quite beyond the realm of therapeutics. Doctor Dunton points out in his excellent paper read before this society last year[3] that

This patient is learning the cobbler's trade and simultaneously, how to forget his troubles.

vocational education *per se* is not a form of occupational therapy, but he retains the term in his classification. It seems to me that the term "pre-vocational training" clears up the difficulty and makes a needed distinction between the third stage of occupational therapy and vocational education. It is needless to emphasize that the principles involved in the application of the arts and crafts to the restoration of function to injured muscles and tendons are entirely different from those involved in the treatment of mental diseases, and still different in the treatment of organic diseases. It is to the treatment of those suffering with tuberculosis that I would engage your attention for a time.

The supervisor of occupational aides in another of the army hospitals informed me that the aides who came to her were well grounded in the principles governing mental cases, but that none knew anything about the management of tuberculous people. Not a few of them were afraid to work among these cases. It will not be a digression, therefore, to refer to a few generally accepted facts regarding this most prevalent of all diseases and, next to injuries, the greatest cause of disability in the army. It is the more important that occupational therapists should realize the importance of studying tuberculosis, since the National Tuberculosis Association, in view of the results obtained in Army Sanatoriums, is beginning a very earnest study of the whole subject with a view to the wider introduction of occupational therapy to civilian institutions and for the purpose has added to its executive staff Mr. T. B. Kidner, one of the founders of this society.

Tuberculosis is an infectious disease that kills 145,000 persons in this country annually. The tubercle bacilli, the germs which cause the disease, are found most commonly in the sputum of those with active disease. They may be found occasionally in purulent discharges from other organs or parts of the body than the lungs.

Wood carving is an engrossing occupation requiring skill of eye and hand, while the pleasure taken in the development of the design assists in the cure of the patient.

Almost every adult at some time or other has become infected. That does not mean that every one has the disease, tuberculosis. It does mean that the germs have been sometimes and somewhere implanted in the body, and have so impressed themselves upon the organism that their presence can be detected by certain well established tests. Because the disease is not hereditary, new born infants do not respond to these tests. The conditions that surround them determine how long it will be before they become infected.

It has been generally believed that infection

[3] Dunton, W. R.: The Principles of Occupational Therapy, the Public Health Nurse, Dec., 1918.

Patients doing reed and raffia work in the occupational therapy department evolve some graceful designs in basketry

is most commonly acquired by the inhalation of the dust of dried and ground up sputum in the homes and on the streets. More recently, however, it is contended that infection is commoner by ingestion than by inhalation; germs being conveyed to the mouth upon the fingers of children who have been playing in contaminated places—the floors, sidewalks, gutters, etc., or with food handled by careless consumptives. Milk from tuberculous cows is also a not infrequent source of infection. But it cannot be too often emphasized that only the prolonged intimate association of healthy persons with those who have active tuberculosis leads to infection from person to person; and only among those with "open" disease, that is, in which germs are being discharged, is there any possibility of infection.

Infection vs. Disease

It is exceedingly important to keep in mind the distinction between tuberculous infection and tuberculous disease. Fishberg[1] and others contend that "mild infections with tuberculosis during childhood endow the organism with a certain amount of immunity against further and renewed infection with tubercle bacilli." There is no conclusive evidence that any physician, nurse, or attendant ever contracted tuberculosis in a well-conducted sanatorium. The careful consumptive is not a menace. He who guards his cough and destroys his sputum is safe to work with and safe to live with. It is the careless consumptive, and the one who does not know he has phthisis, who is dangerous, and he is most dangerous to children.

Gold medal exhibit of work done by patients of Arequipa Sanatorium Manor, and patients at work in Arequipa booth at Panama-Pacific International Exposition, San Francisco, in 1915.

This is an important point for all workers with the tuberculous, but especially for occupational therapists. Hitherto, in most training courses, stress has been laid chiefly upon the nature and characteristics of mental trouble for the relief of which, as you are aware, occupational therapy was first used; and precepts leading to a proper habit of thought towards patients suffering from

An exhibit of baskets and toys, the work of Muirdale patients in the industrial-recreation department.

mental troubles were enjoined upon the student in training. It is of prime importance that the mental attitude toward the tuberculous patient should also be correct and, to succeed in the work, the occupational therapist must free himself of every vestige of fear.

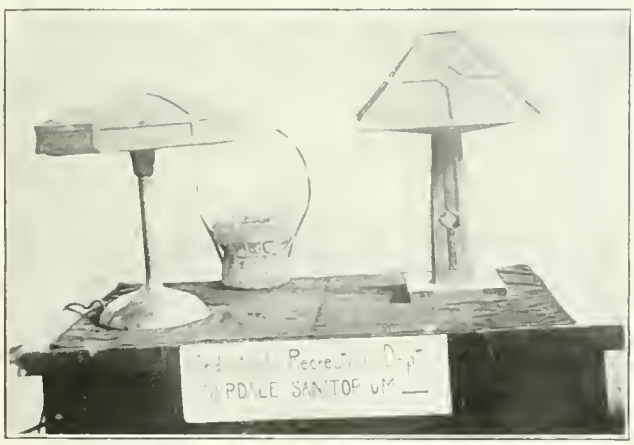
The recognized treatment of tuberculosis has become almost standard throughout the world. The purpose of treatment is the building up of the body, the healing of damaged tissues, and the walling in of the germs so that they may not be conveyed to other points to form new foci of destructive activity. There are no drugs, tuberculins, serums, or vaccines that will cure tuberculosis. Nature heals, and the patients help by securing rest, fresh air, proper and sufficient food, and by maintaining a sanguine and tranquil state of mind. It takes a long time to heal tissues that have been invaded and broken down by so insidious a foe as the tubercle bacillus. Many months and sometimes years are required to bring about permanent arrest of the disease.

[1] Fishberg, M.: Pulmonary Tuberculosis, Second Edition, p. 119. Lea & Febiger, 1919.

Psychologic Control Essential

The battle is a long and tedious one. It is a passive fight which is the hardest for previously active men and women to settle down to. New habits of life must be learned, a new self-control acquired. This is particularly difficult because of the psychologic state of many tuberculous patients. Hence the value of a period of treatment in a well conducted sanatorium which is more a school of life than a hospital.

Rest is of first importance. This sounds very simple but is less so than at first it appears. It involves not only physical passivity but mental quietude. One cannot rest who is having an exciting book read to him or who is worried by family or financial troubles. In the beginning of treatment it is generally necessary that the patient remain absolutely quiet in bed; it may be for a few days or several weeks.



Type of work done in the Industrial Recreation Department of the Muirdale Sanatorium, Wauwatosa, Wis.

Too much emphasis, however, has been placed upon muscular rest without due consideration of mental rest. It is quite impossible for some temperaments to lie still and not become mentally restless. Furthermore, as pointed out by Billings,[5] "adherence to the rest treatment is associated, in the average tuberculous patient, by lessened tone of the tissues, especially of the muscles, and by relatively poor circulation. Inadequate blood and lymph circulation means lessened nutrition of the tissues generally, although the weight of the patient may not indicate it. In other words, the patient's physical disease is much improved but the function of his mind and the circulatory and locomotive organs are far below the normal." Hence, there is an increasing trend toward the use of occupational therapy even while the patient is yet confined to his bed. The

[5] Billings, F.: Physical Reconstruction Applied in the Treatment of Pulmonary Tuberculosis. Transactions, National Tuberculosis Association, 1919.

As the workers become proficient in their occupational diversions more complicated tasks are assigned. This chest and table suggest manual training.

testimony as to its great value in managing tuberculosis among soldiers and sailors in the United States, Canada, and England is pronounced.

"One thinks of many things in bed," said a tuberculous woman. What those thoughts are may decide the patient's fate. Whether they are pleasant or unpleasant, hopeful or gloomy, or, rather, which shall predominate, depends upon the individual temperament and education, and upon environment. If the external stimuli to which the patient must react are not well ordered; if there is nothing to keep him from introspection, from magnifying his troubles, pondering upon his disease, speculating upon his symptoms and the prognosis, much of the value of physical rest will be lost.

Rest Obtained Through Activity

Occupation of the mind is often the best form of rest, and occupation of the hands is the means by which the mind may best be occupied. It is the use of the large skeletal muscles which tends to break down the tuberculous man, but those muscles are of less value in securing mental oc-

This outdoor, screened-in workroom offers an ideal place for Arequipa patients who choose to make pottery of the kind that wins international medals.

cupation. Their use has little cultural value unless the work performed is unusually varied and constructive in character. It is the smaller muscles that have distinct value in stimulating interest, imagination, and ambition. The hands trained to elicit harmony from the strings of harp or violin, that deftly weave a basket or shape the clay into artistic forms, that with square and compass make a constructive drawing, receive their impulses from an interested and developing mind. Curative work must be progressive and constructive. Miss Barringer has observed that the tuberculous soldiers in the army sanatorium at Oteen are themselves continually demanding higher standards of work. "Short of actual drudgery, the more useful the work the better its therapeutic results," writes Dr. Herbert Hall,[6] "and, conversely, the more trivial and

For those who are not bedridden, the occupational aide gives her instructions at a small table around which her student-patients are grouped.

valueless the product of the work, the less effective will it be in the therapeutic sense."

If the work given can be such that it will lead up gradually and naturally toward vocational training, or to vocation itself, so much the more is gained. Even when it is not believed that the patient will require training for a new vocation the "work prescription" should fit as nearly as possible his wishes and aptitudes, so that the knowledge gained may be employed in following an avocation. Some one has said that everybody should have two hobbies, one for indoors and one for outdoors.

In the rehabilitation of disabled soldiers two governmental agencies have been concerned, the Medical Department of the Army, and the Federal Board for Vocational Education. With the former have been the reconstruction aides, giving

[6] Hall, H. J.: Remunerative Occupations for the Handicapped. The Modern Hospital, June, 1917.

Handicraft as taught in the United States General Hospital for Tuberculosis at Oteen, N. C., is not only a diversion but is a preparation for brighter times when health is restored.

the occupational therapy in the wards; also the more advanced work in the curative workshops under male instructors. With the latter have been the vocational advisers, who have counseled with the men as to their future training and placement. One group has had to do with restoration to health; the other, with restoration to industry. In the civilian institution there need not be, indeed cannot be, these two. Both functions must be combined in the director of occupation and his aides. This means a much broader field and, necessarily, a broader training equipment.

Guidance for Arrested Cases

The need for such service is very great indeed, particularly for the tuberculous. There is no more important problem confronting those grappling with tuberculosis than the post-sanatorium management of quiescent and arrested cases. Tuberculosis, as you know, is rarely cured in the sanatorium. There is always danger of reactivation of latent disease. Fifty per cent

Being forced to lie in bed does not necessitate idleness. Busy fingers accomplish wonders in this ward of the army hospital as the well-made and artistic cushion covers testify.

of patients discharged from our sanatoriums break down within a few months or a year or two. This is due largely to the fact that they go back to the very conditions in which their disease developed, conditions which will not permit them to live as they lived while under treatment. Having been under prolonged rest treatment, they are compelled by circumstances to return to full-time work. Often the work is wholly unsuited to their physical state; more often the conditions surrounding the particular job, rather than the work itself, are at fault.

The earning capacity of the patient should be the efficiency gauge by which to measure our service. Mere arrest of the disease is not sufficient. A man without symptoms of disease activity, but unable to work, is not worth much to himself and constitutes an economic drag upon the community. Restoration of social functions as a citizen is the final goal. To this end the physicians and the director of occupation must counsel with the patient.

Canadian soldiers being taught the art of clay modeling, bead weaving and kindred occupations while convalescing from tuberculous afflictions. (Photo by British & Colonial Press, Toronto.)

All vocational guidance has been said to involve four factors: (1) accurate vocational analysis; (2) wise vocational counsel; (3) adequate vocational training; and (4) correct vocational placement.

To counsel wisely there must be not only a knowledge of the processes in the particular industry under consideration but of what effect those processes may have on tuberculous disease in general and upon the particular patient. It must be determined whether the patient may return to his regular vocation; or whether he should be given training for a different job in the same general industry; or, yet again, whether he should be trained for an entirely new trade or profession.

DEPT OF SOLDIERS CIVIL RE ESTABLISHMENT
THIS WORK IS DONE BY
DISABLED SOLDIERS CONVALESCENT ONLY
Industrial Re-Training Soldier Citizens

Disabled soldiers giving public exhibit of occupational therapy work which is done only while they are convalescing. As soon as they are discharged from the army they take industrial retraining as soldier-citizens. (Photo by British & Colonial Press, Toronto.)

It is quite impossible to devise a list of suitable or unsuitable occupations for the tuberculous. A job in which one man could carry on successfully might be fatal to another.

There are few occupations indeed which may not be followed by some arrested cases. All cases can do something. Every case must be studied individually, and all the conditions surrounding the particular job must be studied carefully in order to form an approximately sound judgment as to the suitability of the job for the man.

Greenhouse work, for example, has always been looked upon as a splendid occupation for the tuberculous, but there may be two greenhouses side by side, built exactly alike, both used for growing rose bushes, and it will be found that one will be beneficial to the tuberculous and the other fatal. In one, the plants are being grown

Ward occupations such as these have been introduced in all the military hospitals in Canada. Weaving and reed work have the preference in this group. The work is being inspected by Sir James Lougheed, K. C. M. G., Minister,, Department of Soldiers' Civil Re-establishment. (Photo by British & Colonial Press, Toronto.)

for shipment and transplantation. They must undergo a hardening-up process. The temperature of the house is kept as low as possible, in winter from 55° to 60° F. In summer the plants are grown out of doors. The workers become sturdy along with the plants. In the other house the plants are forced for the purpose of supplying the cut flower market. The house is kept at a high temperature with a high per cent of humidity. The work is carried on under glass throughout the summer. That which favors the growth of rose blossoms likewise favors the growth of the tubercle bacilli.

Fallacy Misleads Many

There is no greater fallacy than the advice to tuberculous people to get "light outdoor employment." There is almost no such thing as a light outdoor job. If it is found it will also be discovered to return a light pay envelope. But good wages are necessary for the healthful maintenance of a tuberculous man and his dependents. The records of the Gaylord Farm Sanatorium[7] "showed that the factory workers held their condition distinctly better, and the office workers far better than did the outdoor workers."

The National Tuberculosis Association's Advisory Committee to the Federal Board for Vocational Education came to the conclusion that it was necessary to offer certain standards or factors to be considered in counseling with the tuberculous. Those adopted[8] are divided into four main groups, each with five subheads.

Personality and Working Conditions

The factors in Group I relate to the personality of the patient, (1) his present health, particularly as to the amount of damage done by the disease processes, and the degree of arrest shown by the medical records; (2) temperament and education, for it is necessary to know whether he is "high strung or phlegmatic, stupid or quick of perception, and the extent of his education and training"; (3) his hopes and ambitions must be taken into account; (4) age will have a direct bearing on vocational education and (5) the sex of the patient must be considered, both for training and placement.

Group II comprises the factors due to conditions of work. (1) Is it active or sedentary in character; indoors or outdoors; heavy or light; involved or simple? (2) Attitude and position are important, for any work requiring a continuous stooping or strained position would be unsuitable. (3) Time, duration, and pauses: is it to be day or night work? It must not be seasonal, requiring intensive application at certain times of the year. Speeding up is dangerous. Tuberculous people should not work more than eight hours daily; some must work less. (4) Fatigue, tension, and responsibility; lifting of heavy weights, and vigorous exertion of the upper extremities must be avoided. Continued nerve strain and too much responsibility are dangerous. (5) Are wages on the *per diem* or piece work basis, and are they adequate for the patient's needs?

Group III comprises factors due to materials and processes; the kind and quantity of (1) dusts; (2) poisons; (3) gases and fumes; (4) infectious material; (5) dangerous machinery and appliances.

Group IV comprises the factors involved in the place of work. (1) Tuberculous cases should not work in high winds nor under a burning sun, nor in slush and rain, nor in super-heated shops. (2) The construction of the work place: flooring is an important item. Basements, underground areas, and overcrowded shops should be avoided. (3) Air: ventilation, temperature, and humidity; (4) light and illumination; (5) sanitary comforts must all be considered.

Having determined what seems to be the wisest course for the patient to pursue, the occupational therapist should cooperate with all existing outside agencies in securing vocational training or proper employment for the patient when his disease becomes arrested. If it be possible to relate the work provided during the treatment to the patients' training or occupation after the disease has become arrested, we may be sure that, as pointed out earlier in this paper, its therapeutic value will be increased manyfold.

A Specialized Profession

I shall have failed in my purpose in presenting this paper if I have not visualized to your mind's eye opportunities for a constantly broadening service, a very real specialized profession for which, fostered by this society, the Federal Board for Vocational Education and the National Tuberculosis Association, there will be a growing demand. For the men and women entering this profession there must be a title and standards of training and of salary. In a recent publication by the New York City Department of Health[9] the occupational therapist is called the "Supervising Orderly." The term "orderly" has long connoted

[7] Lyman, D. R.: Following up the Discharged Sanatorium Patient, American Review of Tuberculosis, Dec., 1918.

[8] Pattison, H. A.: Treatment and Training for the Tuberculous. Bulletin 29, Federal Board for Vocational Education.

[9] Slade, C. B.: The Establishment and Conduct of a Tuberculosis Sanatorium, N. Y. City Dept. of Health: Monograph Series, No. 19, Dec., 1918.

certain very necessary hospital duties not even remotely related to occupational therapy, but coming under the jurisdiction of the head nurse. The occupational therapist must be directly responsible to the medical director and might himself be a physician. Such a title, therefore, as supervising orderly must not be permitted to gain currency, for it is altogether beneath the dignity of your calling. I like the title "Director of Occupation" used by our president in his new book.[10]

[10] Dunton, W. R.: Reconstruction Therapy, W. B. Saunders Co., 1919.

Assistants might be called occupational or vocational aides or advisers.

High qualities of mind and heart are required for the wise management of those who are ill mentally or physically. Permit me to suggest, however, that academic requirements should not be too high, nor the course of training too long. Not men and women with just so many years of high school or college credits are needed for occupational therapy, so much as men and women with common sense, with love of humanity, and with capacity for mental and spiritual growth.

MEDICAL SERVICE OF ILLINOIS STATE INSTITUTIONS UNDER NEW CODE

By A. L. BOWEN, Superintendent of Charities, Department of Public Welfare, Springfield, Ill.

THE reorganization of the executive branch of the Illinois state government under the provisions of the Lowden civil administrative code took place on July 1, 1917. Among the nine state departments which came into being that day was the Department of Public Welfare, created to administer the state's charitable and penal institutions and to perform all the functions formerly performed by the Board of Pardons and Parole. The code created in this department seven subdivisions as follows: assistant director, fiscal supervisor, superintendent of charities, alienist, superintendent of prisons, criminologist, and superintendent of pardons and parole.

The Civil Administrative Code of the State of Illinois possesses the admirable qualification of elasticity. It states general principles and leaves to the director of each department the organization of details and the formulation of policies.

This foresighted provision has made possible the steady advancement of the medical, nursing, social service, occupational therapy, and research work in the charitable and penal institutions of the state, under the direction of the Department of Public Welfare. Staffs in state hospitals have been enlarged, and the State Psychopathic Institutes for special training of physicians has been established.

The civil administrative code possesses the admirable qualification of elasticity. It states general principles and leaves to the director of each department the organization of details and the formulation of policies.

Prior to July 1, 1917, the state charitable institutions, including the hospitals for mental diseases, had been administered by a Board of Control of five members of whom one was an alienist, by whom the first steps had been taken in the development of a comprehensive medical service in these nineteen big institutions. Staffs in state hospitals had been enlarged; a state psychopathic institute for special training of physicians in nervous and mental diseases had been organized; a training school for nurses in each state hospital had been raised to a good standard.

But the alienist of the Board of Control was a dual purpose officer and was handicapped by restrictions, inherent in the plan of organization, which he could not overcome. The prisons, prior to July 1, 1917, were not under unified control. Each went its own way, more or less influenced by political expediency, giving no attention to the medical, psychologic, or psychiatric problems, so numerous among their inmates. The new code brought these two classes of institutions, charitable and penal, into one group to be administered by a single head with the advice and executive help of division heads.

Dr. H. Douglas Singer, for many years director of the State Psychopathic Institute, was chosen as alienist and he was made the head of the medical and nursing service of the charitable institutions. He acts in the capacity of a staff officer, or adviser, the administrative details being cared for by the Superintendent of Charities.

For Criminologist, Dr. Herman M. Adler, formerly assistant director of the Boston Psychopathic Hospital and a member of the faculty of Harvard Medical School, was selected to bear a

similar relation to the penal institutions, acting in an advisory or staff capacity to the Superintendent of Prisons and Superintendent of Paroles.

To the two men was assigned the task of developing the medical, nursing, social service, occupational therapy, and all research work of the department to the very highest standards possible. The war period, which depleted the existing staffs and rendered recruiting impossible, delayed their work; but their plans were laid and are now well on the way to completion.

Material Gains Achieved

Among the results actually achieved may be mentioned:

(1) A working agreement between the state Department of Public Welfare and the University of Illinois Medical School for the creation of a great central group of hospitals for research. Two squares, formerly the Chicago National League ball park, south of the Cook County Hospital in Chicago have been purchased, and soon work will begin on the construction of buildings to house the Illinois Charitable Eye and Ear Infirmary, now located at 900 West Adams street, Chicago; the State Psychopathic Hospital and Institute, the nucleus of which is now at the Chicago State Hospital; and the Surgical Institute for Crippled Children, created a few years ago but never vitalized by an appropriation. These three institutions are contributed by the Department of Public Welfare. The medical school will build a clinical hospital. One and a half million dollars are available to begin this work. Architects have finished the block plan and are now working on detailed plans so that construction may begin in the spring.

Future plans call for a number of other hospitals and institutions and the removal of the college laboratories to new buildings on this site. The Department will administer the group and the university will furnish the professional service.

Included in the functions of this group will be the state training schools for psychiatric nurses, social workers, occupational therapists, and hydrotherapists, the department having established the policy of training its own specialists for its institutions.

(2) The organization at the Chicago State Hospital of the Illinois State Training School for Psychiatric Nursing under the superintendency of Miss Helen Sinclair. This school furnishes a three year course. Pupils must be high school graduates. Affiliation has been established for mutual benefit between this school and general hospital training schools. Graduates will be eligible to the ranks of psychiatric nurse, psychiatric supervisor, assistant chief nurse, and chief nurse, all well compensated positions.

Pertaining to Personnel

(3) The medical staffs of the state hospitals have been increased 40 per cent in number and salaries have been increased by twenty-five dollars per month.

(4) A state surgeon to do the surgery in all institutions, not provided with a surgeon, on their staffs, has been appointed and is at work.

(5) The position of assistant chief nurse has been created for each state hospital.

(6) The practice of the specialties in each institution is being organized so that among the insane and feeble-minded in particular, it is planned to give eye, ear, nose, and throat treatment on extensive basis.

(7) Full-time dentistry has been established in each large institution.

(8) A training school for qualified nurses, not eligible to registration, has been organized in each state hospital.

(9) Two new institutions, the Alton State Hospital and the Dixon State Colony for Epileptics, have been organized and opened since July 1, 1917, in the face of war conditions which made it almost impossible to secure help of any kind. The first now has 700 patients and the second 300. Appropriations are available to increase the former to 1,200 and the latter to 1,000 patients.

(10) Vacancies among medical superintendents have been filled by promotion from the rank of assistant superintendent, thus removing the last vestige of politics from the state charitable institutions.

(11) Among the institutions for children, such as the schools for the deaf and blind and the home for dependents, marked progress has been made in furnishing special care and treatment of medical and surgical character.

Occupational Therapy Organized

(12) Occupational therapy on the broadest basis yet laid in a state hospital service in this country is being organized in all state hospitals, beginning in Chicago and Elgin, where students for positions in the army received their training and experience. Appropriations are available at all the state hospitals for the inauguration of this work on an extensive scale. The handicap is the lack of teachers and workers. Mrs. Eleanor Slagle, probably the leading woman in this profession in this country, is general superintendent of the work for all the Illinois institutions.

(13) The last legislature made liberal allow-

ances for the organization of comprehensive social work in all hospitals and other institutions. This work is to be under the direction of the alienist and criminologist. Workers are being installed as fast as they can be secured. The state is being districted. Each district will be in charge of a chief worker and such assistants as she may need. Each state hospital will have a resident social worker. The district organization will serve the needs of all the institutions which may be represented in the population of the district, and will act in harmony with the resident social workers of the state. Already some very gratifying results have been secured from the work of these trained people.

(14) On the side of the Criminologist the first steps have been taken in the organization of a real medical psychologic and psychiatric service in the prisons and the two schools for delinquents, located at Geneva and St. Charles. The Criminologist's division is furnishing the division of paroles with studies of prisoners who are about eligible for parole. Complete survey of the boys in the reformatory is in progress under expert direction.

(15) The Criminologist has organized and has in running order in Chicago, the State Juvenile Psychopathic Institute which is seeing and advising hundreds of families and individuals. It cooperates with the county court of Cook County in the determination of cases involving feeblemindedness.

Summed up, the organization of the medical forces under the state Department of Public Welfare conforms to the following lines:

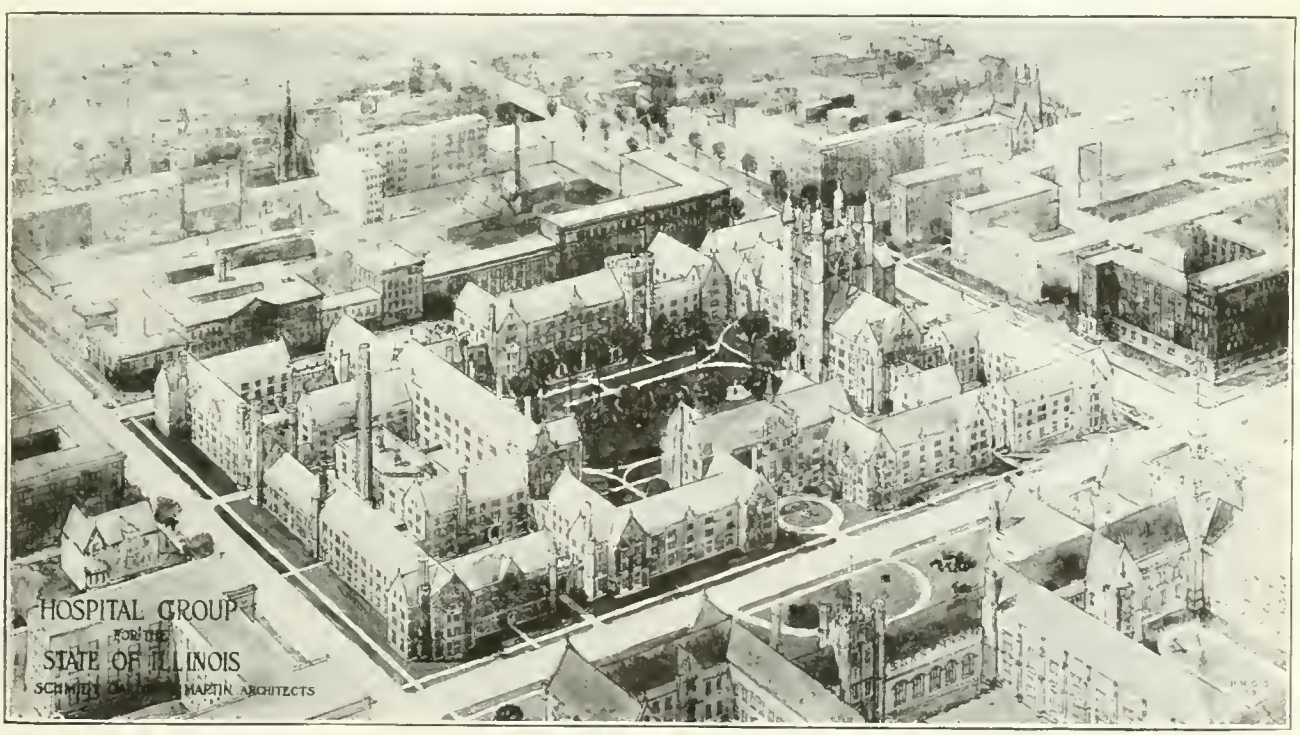
I. General Medical Service

The general medical service affords ordinary medical and surgical care for the charitable and penal institutions. Physicians are recruited by civil service on whole or part time as necessary. No promotion is possible.

II. Special Psychiatric Service

Special psychiatric service for the insane hospitals, feeble-minded schools, the epileptic colony, and penal and correctional institutions. Men are recruited through civil service, preferably after serving an internship in a state hospital. A man in this service begins as assistant physician, with promotion to physician, and then to one of two lines according to the direction of interests. One of these is administrative to assistant managing officer from whose ranks in the main managing officers are selected, the other in more professional line leads to appointment as assistant psychiatrist and psychiatrist. Physicians especially interested in pathological work can also be placed as pathologists in the state hospitals and rank with the physicians.

Assignments to duty may be made either in insane hospitals or in the penal and correctional institutions, and thus afford the possibility of developing special interests. Opportunities in the



Birdseye view of proposed new group of hospitals which will furnish the clinical material for the University Medical School. Buildings will be erected on site just south of the Cook County Hospital.

latter field are especially good at the present time.

Opportunities for instruction of these various officers afforded from time to time through courses given by the Psychopathic Institute will be increased by the establishment of out-patient clinics in mental and nervous diseases in connection with the educational service, with the various state hospitals, and also in correctional work through the Juvenile Psychopathic Institute.

At the present time psychiatrists and assistant psychiatrists report direct to the Criminologist or Alienist and work, assigned in the Juvenile Psychopathic Institute, in the Psychopathic Institute, and in the penal and correctional institutions. The assistant managing officers, physicians, and assistant physicians report to the managing officer of the institution to which they are assigned.

III. The Educational Service

The educational service includes psychiatry and the specialties of the eye, ear, nose and throat work, as well as orthopedic service. This educational service, which will also constitute a special research service, is supplied by the medical college of the University of Illinois through the several departments interested. Special service for interns in state hospitals with provision for instruction in psychiatry during part of their service in the central group of education hospitals about to be erected is offered. This is not limited to students of the University of Illinois College of Medicine.

The Psychopathic and Juvenile Psychopathic Institutes will form part of the educational group and arrangements will be made to afford instruction and opportunity for research to psychiatric officers of the state hospitals and penal institutions. The professional work of the Eye and Ear Infirmary and of the Orthopedic Hospital will be directly under the College of Medicine of the University. Special provisions are at present made for the care of major surgical cases by the appointment of an institutional surgeon who visits the various hospitals. Cases needing special surgical care can be transferred to one hospital which has been equipped for the purpose. This service will eventually center in the educational group.

University Educational Campaign

A press bulletin service by means of which the larger newspapers in Illinois will be furnished with news stories and articles pertaining to public health, hygiene, and sanitation, has been inaugurated by the department of hygiene and public health of the University of Illinois. The articles are contributed by members of the faculty who are authorities on the various branches of health work. The movement is part of the public health education work of the university.

The Late Sir William Osler

Sir William Osler, noted physician and author, whose death occurred at his home in Nordham Gardens, Oxford, Eng., December 29, after a long illness. For the past fifteen years he had been regius professor of medicine at Oxford. Prior to 1904 he was professor of medicine at the University of Pennsylvania, and at the Johns Hopkins University, Baltimore.

GOVERNMENT CONTINUES WELFARE WORK

All welfare work previously done in army camps and cantonments has been taken over by the military authorities. At the request of the surgeon general, the Y. W. C. A. will maintain its social directors in army hospitals until such time as the army can provide funds necessary for carrying on this work.

ISSUES WEEKLY HEALTH INDEX

Weekly mortality reports from the largest cities in the United States are being issued as a health index by the Bureau of the Census. Special attention is called to the figures supplied by the industrial insurance companies and published at the bottom of the last page of the reports. These data furnish each week a valuable index of mortality for comparison with the rates in cities of 100,000.

PLAN HEALTH CONSERVATION

A plan for nation-wide conservation of health is being urged by Surgeon General Blue, of the United States Public Health Service, who is calling on all the health agencies to cooperate in a carefully prepared program. In the statement just issued he says that preventable disease cost the United States $4,000,000,000 less in 1917 than it would had health conditions of twenty years ago prevailed in 1917. Illness of workers still costs this country $2,000,000,000 a year.

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L. HOFFMAN, M.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

A NEW POLICY

THIS department of MODERN MEDICINE will from the present issue enter a new policy. The collaboration of the staff of departmental editors will make it possible for us to publish a much wider range of material than has heretofore been possible.

We believe that this department of MODERN MEDICINE has a particular function to perform. It will attempt to present month by month all of the important publications in various fields in medicine and it will constantly aim to present its material from the standpoint of the general medical reader rather than from the point of view of the specialist. Furthermore, the editors will take the liberty of inserting in the body of their reviews editorial comment. It is assumed that the specialistic reader obtains his special literature from particular journals devoted to that purpose. It is, however, difficult for the average man of medicine to-day critically to estimate the value to general medicine of many articles published in the specialistic journals. Men who are doing intensive work can more readily appraise publications and, perhaps, even see their relative values better than anyone else.

The editors in all modesty realize that in adopting such a policy they adopt an attitude of critical ability which in the nature of human affairs may not be present, but we feel that it is a far wiser effort at constructive medicine to add the human comment than to bring before our readers the cold facts. If the readers do not agree with the comments, they can at least feel sure that an honest effort will be made each month to present them with the more important medical contributions culled by a large number of readers from the extensive literature of the day.—EDITOR.

LACK OF SUNLIGHT AS A CAUSE OF ANEMIA

AS our modern industrial life grows in complexity an ever increasing number of human beings find themselves in occupations in which they labor for a considerable number of hours each day entirely cut off from the rays of the sun. Formerly the miners made up probably a majority of those so occupied, but more recently our large cities with their miles of "subways" and the basements and sub-basements of our metropolitan "sky scrapers" have created myriads of new subterranean workers. Now there has always been a distinct belief both among laymen and physicians that a lack of sunlight leads to anemia and, if this be true, we are facing a socio-medical problem of no little importance. With the aim of gaining some experimental data towards establishing the truth or falsity of this generally accepted idea Grober and Sempell[1] have conducted a series of observations on horses working in the coal mines of Westphalia. These animals had lived continuously underground for from five to ten years, had received excellent care in the way of food, drink, cleanliness, etc., and appeared in every way in fine condition. Determinations were made on the blood of twenty-two of

[1] Grober and Sempell: Composition of the Blood After Prolonged Withdrawal of Sunlight, Deutsch. Arch. f. clin. Med., cxxix, 5-6.

these animals as to the per cent of hemoglobin and the number of erythrocytes. Compared with the results obtained from healthy horses living on the surface of the ground, it was found that the blood of the mine animals showed an increase of about 12 per cent in the red cells and a slight diminution in hemoglobin. The depth below the surface at which the mine animals worked was not a factor in the results since the readings from animals living on different levels were fairly uniform and in the same direction. Evidently, then, long continued lack of sunlight causes no anemia in well nourished and well cared for horses.

While it would be wrong to draw from these experiments any very certain conclusions as to the effect of lack of sunlight on the blood of human beings it might be well to discard our preconceived ideas on the subject and to attempt by properly controlled observations to gain some insight into this important problem.—(J. E. C.)

A RECONSIDERATION OF CARDIAC AFFECTIONS

WE are so accustomed to read stereotyped classifications in medical literature that it is a novelty to find an article that deviates from the accepted "truths," and expresses new ideas regarding some disease. For many years the medical literature clung to a classification of heart diseases based on the presence or absence of murmur and the location of same. It is hard to find a single textbook that does not divide chronic valvular diseases into mitral regurgitation, mitral stenosis, double mitral, aortic regurgitation, and aortic stenosis. In view of this, it is interesting to read the article by Thomas Lewis on cardinal principles in cardiological practice.[1] In this article Lewis has reconsidered the classification and conception of heart diseases. He points out that the old classification is only of minor value for a guiding prognosis or therapy, that a systolic murmur over the precordium tells little or nothing of a man's capacity for work, and that the term "double murmur" is a misnomer. The author is of the opinion that in dealing with chronic heart affections there are but two conditions of the aortic and mitral valves, which will repay a general physician expenditure of much time and thought; these are incompetence of the aortic valves, and stenosis of the mitral valves. Both these conditions may usually be diagnosed with confidence, for it is their habit to present signs of an unequivocal nature. That is of high importance; a step taken with certainty is of far greater value than one taken even a little less confidently. A prognosis is too important a thing to mould on anything but a secure basis.

After discussing briefly the important symptoms and signs of cardiac failure, of cardiac enlargement, or valvular disease, and of fibrillation of the auricles, the author reaches a point where he not only criticizes, but also advises. He says:

> There is a direction in which medical men are much hampered in dealing with chronic heart disease. It is in trying to order the future lives of working class men to suit the heart's power of reserve. Many cardiac patients leave our hospital wards after a short period of rest, a period during which there has been much improvement of the heart's capacity for work. Yet these patients are but too often totally unfit to take up again those daily tasks in and by which they have already suffered. To tell a working class man that his former work suits him ill, to tell him that he must find new work of lighter grade, is good enough advice; but how often is it within the man's power to act on that advice? How often is it within the doctor's power to see that his advice is followed? We greatly need in this country a system by which disabled workers are placed and cared for in suitable employment. Cardiac cases are for the most part conspicuously willing workers, frequently too willing; there are many men doing heavy work in this country to-day, and at the same time surely, but may be slowly, dying of heart disease. It is a shameful thing that these unfortunates are put by hard necessity to tasks far beyond their endurance.

The above advice, given to medical men in England, can well be taken by medical men in this country. The cardiac problem in this country is just as acute as in any other country, and it behooves every physician who comes in contact with a heart case to think not only of the proper grouping of the patient's condition, but also of the prognosis, and of the treatment with the hope of solving, in some degree at least, the problem of that particular patient.

1. Lewis, Thomas, M.D.: Cardinal Principles in Cardiological Practice. Brit. Med. Jour., November 15, 1919.

ON SUGAR, CHOLESTEROL, URIC ACID, AND ALBUMIN

THE increasing amount of study which has been devoted to the above mentioned subjects has by no means as yet succeeded in clearing many of the mysteries of the interrelationships between blood chemistry, disease, and renal excretion.

There still remains to be painted a picture such as we now posses regarding red blood cells or white blood cells in their relation to various diseases. There is no dearth of literature on these subjects, and to-day we pick at random a few of the recent contributions.

Hamman[1] writes on the significance of a small amount of sugar in the urine. He says that on

1. Hamman, Louis: The Significance of a Small Amount of Sugar in the Urine, Carad. Med. Assn. Jour., 1919, ix, 961.

the discovery of a small amount of sugar in the urine the physician is confronted with the question, what is the meaning of this discovery? Three possibilities arise: (1) mild diabetes, (2) "an interesting but innocent abnormality," and (3) neither one nor the other, but an unknown something requiring further investigation. In order to determine to which class the patient belongs there must be a definite means of separation.

Hamman gives the best known means of differentiating these groups. He lays special emphasis on the proper method of collecting urine. It is a well known fact that glycosuria even in a diabetic will sometimes appear only after a meal containing carbohydrates and that the morning urine may be sugar-free. It is, therefore, unwise simply to ask a patient to bring a specimen of urine without designating that such specimen should consist of the urine voided from two or three hours after the heaviest meal of the day, as well as the morning specimen which he will naturally bring. As has been previously emphasized by many other writers, the mere reduction of copper sulphate solution is not proof of glucose, and the urine must be further studied to identify the substance by the fermentation test or perhaps by more extensive chemical work.

Hamman then discusses the modern conception regarding blood sugar and shows the differences between the blood reaction in a true metabolic disease and that in a renal anomaly after the ingestion of a known weighed amount of glucose. A metabolic disturbance is characterized usually by a somewhat prolonged rise in the level of the blood sugar associated with glycosuria. (It should be emphasized, however, that there may be mild degrees of diabetes which are not orthodox in their reaction.[2])

Mention is made of an interesting anomaly which is beginning to occupy more and more attention since the first case was published by us in American literature in 1914, namely, renal glycosuria. This is a disease which is characterized by the continued excretion of small amounts of sugar without hyperglycemia and with none of the clinical symptoms of diabetes. The necessity for laying stress on this condition lies in the established fact that diabetic treatment is contraindicated and that these patients get along better when left alone.[3]

In the same journal Mackay[4] reports a case of postural albuminuria in a young man twenty-seven years of age. This case had all the characteristic manifestations of this interesting anomaly, namely, presence of albumin practically only when the patient was in a standing position, and its disappearance on rest and after exercise. In Mackay's case the Mosenthal renal function meal gave a perfectly normal reaction and the phthalein excretion was 62 per cent in two hours. These postural albuminurias are still the subject of much investigation, but it is very probable that they do not represent a condition of true nephritis, and from the standpoint of treatment need not be considered as such.

Rothschild and Felsen[5] discuss the cholesterol content of the blood in various hepatic conditions. They review previous work in the study of cholelithiasis in which a group of patients was encountered who had a continuous hypercholesterinemia, which persisted even after operation and the removal of obstruction. It was thought from the previous work that the liver was the regulator of the cholesterol metabolism of the body. In the present study, however, it was found that in conditions associated with hepatic disorders the cholesterol content of the blood is not increased, and is usually reduced; and that the cholesterinemia is not proportionate to the amount of bile pigments present in the blood. Also, in the so-called hemolytic icterus there is no increase of blood cholesterol.

These two findings are in direct contrast to the previous observation that in obstructive jaundice due to stones the cholesterol content of the blood bears a definite relationship to the intensity of the jaundice.

Upham and Higley[6] publish a study of the renal concentration power for uric acid in early chronic interstitial nephritis. Patients were placed on a diet containing 2,880 calories and with known amounts of food constituents for forty-eight hours previous to the examination of the blood and urine. The concentration ability of the patient is measured by dividing the amount of urine uric acid by the amount of blood uric acid, the authors believing that this figure is of greater value than the blood uric acid alone.

From their study of nephritic and non-nephritic cases, they make three clinical groups: (1) A group showing clinical symptoms of nephritis. In these patients the concentration figure is 14 or lower. (2) A group with no clinical symptoms of nephritis and a concentration figure of 20 or above. (3) A group which shows clinical symp-

2. Editor's comment.
3. Allen, Frederick M.; Wishart, Mary B.; and Smith, L. Millard: Further Discussion of Renal Glycosuria: Three Cases of "Renal Glycosuria," Arch. Int. Med., 1919, xxiv, 523.
4. Mackay, Malcolm: Postural Albuminuria, Canad. Med. Assn. Jour., 1919, xix, 975.
5. Rothschild, M. A., and Felson, J.: The Cholesterol Content of the Blood in Various Hepatic Conditions, Arch. Int. Med., 1919, xxiv, 520.
6. Upham, Roy, and Higley, Henry Allen: The Study of Renal Concentration Power for Uric Acid in Early Chronic Interstitial Nephritis, Arch. Int. Med., 1919, xxiv, 557.

toms suggestive but not diagnostic of nephritis with a concentration figure below 18.4.

Only thirty-four cases were studied altogether, and in the opinion of the editor the conclusions, while interesting, are by no means more than suggestive. In order to get the proper chemical values from a study of this kind, it seems to us that a large series of patients must be used and that the diagnosis must be broader than one based merely on kidney lesions. It hardly seems logical to suppose that the kidney is the only factor in the complex uric acid metabolism even when considering merely its concentration.

ETIOLOGY OF YELLOW FEVER

THE recent work of Noguchi, of the Rockefeller Institute for Medical Research, on the Etiology of Yellow Fever, published in the June to October numbers of the *Journal of Experimental Medicine*, conclusively demonstrates the causative agent of Yellow Fever. It is important to recall at this time the work of Reed, Carroll, Lazear, and Agramonte, which was published in 1899 and 1902. They were the first to show that Yellow Fever is not a bacterial disease; that it is conveyed by one species of mosquito, *Stegomyia faseiata Seu Calopus*, from person to person; that an incubation period is necessary in the mosquito of from ten to twelve days before its bite is infectious; that the disease can be transmitted directly by injecting blood from a patient on the second or third day of the disease into a nonimmune, and that the virus of Yellow Fever can be passed through a Berkefeld or Chamberland filter. This important work was done by an American commission and can be considered as having been completed by Noguchi, working in an American laboratory.

Guided by the researches of Reed, Carroll, and their associates, Gorgas, by means of exterminating most of the mosquitoes, and by protection against them, has virtually done away with Yellow Fever in Havana and in the Canal Zone, Panama. This entire work is one of America's greatest contributions to medicine.

Since the pioneer work of Reed, Carroll, and their associates, there has been no important contribution in the study of Yellow Fever previous to the present work of Noguchi. This work should be read in the original properly to be appreciated, for it is a model as a systematic, concise, simple statement of a tremendous discovery.

The first article gives a remarkably clear picture of Yellow Fever as it occurred in Guayaquil. This demonstrates the identity of the Yellow Fever in Guayaquil with the disease as it is recognized elsewhere, and there can therefore be no doubt that the disease studied was Yellow Fever. The description of the disease in Guayaquil should be of great interest to clinicians.

The second article presents the "Transmission Experiments on Yellow Fever" and confirms the previous findings of the Reed-Carroll commission as to transmissibility, the relationship of the mosquito to transmission, and the filterability of the virus.

The third paper deals with the symptomatology and pathological findings in animals experimentally infected. Noguchi states that "the symptoms and lesions observed in animals experimentally infected closely parallel those of human Yellow Fever." The pathological changes occurring in the experimental disease are also similar to those of the human disease.

Article six describes the cultivation, morphology, virulence, and biological properties of the causative agent of Yellow Fever. The method of cultivation is a modification of Noguchi's original method for the cultivation of spirochetes and also of the globoid bodies of poliomyelitis. This special method of cultivation has already yielded remarkable results in the hands of Noguchi and many others, and is probably the most important contribution to bacteriological technic in the last twenty years.

The original method of Noguchi is as follows: In a tall culture tube, about 1x20 cc. in size, is placed a small piece of sterile rabbit kidney; a column of ascitic fluid 8 to 10 cc. high is then added and, after inoculation, the medium is overlaid with a layer of sterile paraffin oil or vaselin. It would seem that the ability of the sterile kidney tissue to absorb oxygen and render the conditions in the serum almost completely anaërobic is one of the important elements of the media. A modification of these media is used by Noguchi in the work on Yellow Fever. These tubes were inoculated with citrated blood drawn from the patient or infected animals. A great many tubes were inoculated and in some of them an organism belonging to the genus *Leptospira* was found in from three to five days, by both dark field and staining methods. This organism has been tentatively named *Leptospira icteroides*. It has been isolated in pure culture and successfully transplanted. When pure cultures are inoculated in the guinea pig and some other animals, the typical experimental disease develops. This is identical with the disease which develops when blood from a patient is inoculated and the same organisms are recovered from the blood of the infected animals. The presence of blood serum is essential for its growth. It passes through the pores of a

Berkefeld filter and N., and there is a possibility of its having a granular phase of life under certain conditions.

The organism is somewhat similar in appearance to the *Leptospira icterohaemorrhagiae* of infectious jaundice. It has, however, definite morphological differences from the latter organism, as well as biological and immunity differences. The *Leptospira icteroides* has been demonstrated in the blood and urine of Yellow Fever patients during life, and, also, in their tissues after death, as well as in animals experimentally infected.

Article eight deals with the presence of *Leptospira* in wild animals, in Guayaquil, and its relation to *Leptospira icterohaemorrhagiae* and *Leptospira icteroides.*

Article nine is an extremely interesting study of the relationship of mosquitoes to Yellow Fever, confirming the work of Reed and Carroll, with the addition of the isolation of *Leptospira icteroides* from animals infected by the bites of mosquitoes.

The importance of this contribution of Noguchi's can scarcely be overestimated. Although Yellow Fever is not present in the world today in the epidemic form in which it formerly occurred, it is nevertheless of the greatest importance to know the organism which is the cause of this disease. The importance of the relationship, or rather the differentiation, between the cause of Yellow Fever and Infectious Jaundice is only one of the accessory facts already brought to light by this investigation. Probably the fact of greatest significance brought out by this work is the value of the newer bacteriological methods of Noguchi in studying the disease Yellow Fever, which we previously knew was caused by a filterable virus. These methods should be intensively used in studying other infectious diseases whose etiology is unknown.—W. T.

PROPHYLAXIS AND TREATMENT OF TETANUS

THE knowledge and treatment of the disease of tetanus gained through war experience can be bodily transported into civilian practice. Although most of the individual facts were known, the subject as a whole was not widely understood.

It was anticipated that the incidence of tetanus among the wounded, fighting over territory heavily fertilized for centuries, would be very high. Due to the prophylactic treatment it was, on the contrary, very low. It was soon recognized that the initial dose of 500 to 1,500 units of anti-tetanic serum immunized the patient for a comparatively short time.[1] The British concluded this time to be about two weeks (ten days). After this the patient could be infected from his own wound. Therefore, it soon became the practice to repeat administration of the anti-tetanic serum after an interval of a week, usually using about 500 units.[2] The period of a week would place the second dosage within the limit of the immunity and also within the limit of an anaphylactic reaction. The dosage was repeated weekly as long as the condition of the wound made it appear likely that a re-infection might occur. Wounds which were constantly being contaminated by feces, such as wounds of the rectum or colon; large, evidently septic wounds; or wounds in which there still remained bits of clothing,—foreign bodies,—were looked upon as probable foci for infection.

Long before our troops got into action the custom of very early and very complete wound débridement (through excision by necrotic tissue, removal of foreign bodies, etc.), had been universally adopted. This of course was invaluable in lowering the tetanus incidence.

In spite of the repeated doses of prophylactic anti-tetanic serum, late secondary operations for reducing deformities, overcoming contractures, or bone operations in site of the original wound, were followed by tetanus. As a rule, this type was more benign than the usual case, but many serious cases also developed. It became apparent that the tetanus organism, probably in its spore form, was very resistant to all forms of treatment; it remained dormant for long periods of time, and could be aroused into activity by operative manipulations.[3] For this reason, before any operative procedure on an old wound a dose of 500 units of A. T. S. (anti-tetanic serum) was given. The serum was given in the concentrated form, usually into the muscles of the abdomen, although the thigh, buttocks, and other muscular parts could be used as well. No particular effort was made to inject in or near the wound.

Wherever the above mentioned method of prophylaxis was faithfully carried out, the incidence of tetanus, as previously stated, was exceedingly low.

Tetanus which did develop after the prophylactic treatment, developed atypically.[4] Trismus was very often absent. With many cases the symp-

1. MacConkey: A. The Passive Immunity Conferred by a Prophylactic Dose of Anti-Tetanic Serum, Lancet, Lond., 1917, excii, 259.
2. Manual of Injuries and Diseases of War, Government Printing Office, Washington, 1918.
3. Berard: Late Tetanus, Bull. de Acad. de Méd., 1915, xxxiv, 234.
4. Lumiére, A.: Sur le tëtanos post-sérique, Ann. de l'Inst. Pasteur, Paris, 1917, xxxi, 19.

toms were confined to localized muscle groups, where rigidity, increase in reflex irritability, or a subsultus was noticed. The dictum that the longer the incubation period the milder the tetanus held good to a certain extent.[5] Attendants, nurses, and orderlies were directed to report such signs as increased nervousness of the patient, slight rigidity of the neck or certain muscle groups, slight paralyses, or an increase in reflex activity, all of which were regarded as possible signs and symptoms of tetanus. Treatment was begun at the very earliest possible moment. Large doses, often 50,000 units of A. T. S. were given within the first twenty-four hours. The intramuscular method was found to be the safest and best. The serum was more readily absorbed than when given by the subcutaneous route, and in all but the most serious cases the system could be quickly enough flooded when large doses were injected into the muscles. The intravenous and intraspinous, or intrathecal injections were found to have a field of usefulness in very severe cases. Magnesium sulphate injections were discarded by most of the authors.[6] After tetanus had once developed, surgery was found to be of very little benefit. Associated with the antitoxin treatment, must be emphasized the insistence of absolute quiet and rest.

CHICAGO CLINICS FOR MALNOURISHED CHILDREN

By BLANCHE M. JOSEPH, Field Dietitian, Emmanuel Mandel Memorial, Michael Reese Dispensary, Chicago, Ill.

The work of dietitians as an adjunct to health centers, out-patient departments of the various hospitals, and dispensaries in Chicago, has long pointed to malnutrition in children as a problem calling for a specific program in which all agencies need to unite. The insight into prevailing conditions in Chicago of Mrs. Ira Couch Wood, representing the McCormick Memorial Fund, made it possible to secure Dr. Wm. R. P. Emerson, of Boston, Mass., who, with the assistance of Miss Mabel Skilton as chemical nutrition worker, began the work with two weeks of intensive training in malnutrition.

The first week gave to a group of physicians, nurses, dietitians, and social workers a course evolved in the nutrition classes held by Doctor Emerson in Boston. The second week was devoted to lectures, illustrated by lantern slides, which visualized to the student, parent, and the community the malnourished child as he is found in the congested districts and boulevards of the city.

To disseminate as far as possible the interest in the malnourished child, Doctor Emerson spoke before many people in various parts of Chicago, reaching in this way teachers' clubs, parent-teacher associations, the Pediatric Society, and the Chicago Medical Society, as well as the various women's clubs. Demonstration clinics were held daily in the public schools. As a result of this intensive work, Chicago is ready for the job. Every agency is ready to help. During the next few weeks dispensaries will open clinics for the malnourished child, the school child, and those unable to get working certificates on account of under weight.

That this is a civic problem is shown by the fact that 25 per cent of the children in the United States are malnourished. Try as hard as they may to master the three R's, these under-nourished children find their work too great for their strength, and they need special clinics to be brought into normal growing condition.

The first preliminary to the work of the clinic is a complete physical examination. When the physical examination shows a child to be in condition to be admitted to a nutrition class, he is then free to gain. With the correction of his faulty health and food habits he increases in weight with great rapidity. The routine in each case involves, (1) the removal as far as possible of existing physical defects, (2) the home control of nutrition conditions, (3) the removal of any condition of over-fatigue, (4) the correction of improper food habits, and (5) the detection of any improper health habits. If a child is of marked under weight or is not gaining at the normal rate, the reason for the situation is then disclosed. It is not to be regarded as hereditary or unimportant.

Even if without special care a child reacts finally from conditions due to malnutrition, he may in the meantime form bad mental habits; his power to think quickly may be impaired; or he may become more susceptible to diseases than the normal child. The element of over-fatigue plays an important rôle. Too many movies, too many outside attractions, clubs, parties, and advanced studies are bad for the malnourished child, and he must be given more frequent rest periods. Children that are "finicky" about food must be understood and taught the proper habits of eating, regular meals, and no candy between meals. Coffee and tea are forbidden.

It is remarkable to see how quickly the child gets the "I will" spirit, and in class exercise with other children competition plays a great part. Charts are kept of each child's progress. They watch their line charts as the children move up the line of "Proper Weight for Height" and they feel if their neighbor "malnourished friend" can gain, they, too, will live up to the letter as the doctor prescribes. A marked change is noted in the appearance, and the gloomy, inactive child becomes alert.

The work of the clinic is supplemented by intensive class work in the schools and dispensaries under the guidance of a physician who is making this a special study. Follow-up work is done by a nutritional worker who fills in the picture of home environment and other contributing conditions.

The ultimate result of this form of medical service should certainly advance the physical standards of this generation and the next. In it we have the promise of healthy men and women who more nearly conform to the standards of weight and height. A final report of the work will be made in the pages of MODERN MEDICINE at the conclusion of the classes.

WILL STUDY AT STATE INSTITUTION

A small class of graduate students of the Massachusetts College of Pharmacy will spend one day each week during the first half of the session at the State Anti-Toxin Laboratory at Forest Hills. The work will be on vaccines, serums, and the like. During the last half of the year the class will study physiological testing.

5. Taylor, Kenneth: Tetanus, Jour. Am. Med. Assn., 1918, xx, 681.
6. Bruce, D.: Lancet, London, 1917, i, 131.

STANDARDS OF PUBLIC MATERNITY CARE
A COLLECTIVE ABSTRACT

By HUGO EHRENFEST, M.D., St. Louis, Mo.

THE Children's Bureau of the United States Department of Labor has just published Section III[1] of the *Standards of Child Welfare*. This pamphlet contains a large number of papers dealing with "The Health of Children and Mothers" presented in a series of regional conferences which had been arranged in various cities by the specially created Child Welfare Department. In submitting these reports Miss Julia Lathrop, the chief of the Children's Bureau, in a preface points to the fact that obviously the views of method and approach expressed by the various contributors are at variance, but that as a whole there is a marked agreement on the great essentials of a child welfare policy for the Nation. These essentials are: Public responsibility for the growing generation; confidence in constructive measures; insistence upon greater uniformity in laws; and upon the necessity of enlisting able and devoted citizens to carry on both public and private child welfare activities. "Under circumstances of such difficulty as we happily can not conceive, the civilian population of Europe was achieving new laws for the protection of childhood, new ideals for the future development of the race. It was felt that the second year of the war in the United States ought to show a popular sense of responsibility for child welfare in some degree commensurate with our opportunities."

A Proper Obstetric Service

Williams[2] lays down the following standard requirements for proper obstetric care applicable for all larger cities: (1) Monthly prenatal visits during the second half of pregnancy, with examination of the urine. (2) A careful preliminary examination four or six weeks before the expected date of confinement, which should include a general physical examination, as well as pelvimetry, mapping out the position of the child, and the determination of the existence of any serious disproportion between the size of the head and the pelvis. (3) Reasonable care at the time of delivery by one who will observe the ordinary rules of aseptic technic and who knows enough to abstain from meddlesome midwifery, with the understanding that suitable hospital accommodations are available for all patients presenting such complications as can not be satisfactorily treated in their homes. (4) A careful postpartum examination four weeks after the birth of the child, for the purpose of relieving or treating minor abnormalities, and of detecting the existence of such lesions of the birth canal as may require operative relief. (5) Supervision of the baby for the year following its birth.

Difficulties in Rural Districts

Under present conditions such standards unfortunately could not be maintained in many rural districts, for in many such localities physicians are not available, and the woman is often fortunate if she can obtain the services of even a partially trained midwife.

Progress in this regard can be made only along three lines: By a campaign of education in which the women and their husbands are taught that it is their right and duty to demand reasonable care during pregnancy and at the time of labor; by the institution of state aid and by national subventions, partly for educational purposes, but particularly for the carrying out of such minimal standards as seem essential; and by legislation requiring local health officers or midwives,—in localities where they are generally employed,—to assume charge of the situation and to lay down certain regulations which the midwives must be compelled to follow.

The first step in such a campaign would consist in the compulsory registration of every pregnancy through the local health officer. It then will be possible to furnish every pregnant woman with certain instructive literature and to help her to provide proper care at the time of labor. Midwives would be permitted to take charge only of cases found normal on examination, and should be required by law, even in cases certified as presumably normal, to call a physician whenever labor lasts more than twenty-four hours, or when any unexpected abnormality develops. Women presenting abnormalities at the time of registration should be directly referred to a physician or hospital.

The adoption of such regulations obviously

[1] Standards of Child Welfare. Reprint from Conference Series No. 1, Bureau Publication No. 60, U. S. Dept. of Labor, Children's Bureau. Washington, 1919.

[2] Williams, J. Whitridge: Standard Requirements for Obstetrical Care, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.

would necessitate a revolution in the methods of medical practice in rural districts, and could be carried out only if sufficient funds were available.

Venereal Problem in Welfare Work

The importance of the venereal problem in child welfare work is taken up by Jeans,[3] who especially emphasizes the known seriousness of syphilis. He calls for the routine Wassermann test as an essential in a good standard of prenatal care. According to his figures, the waste in infant and child life in a large group of syphilitic families is more than 60 per cent as compared to less than 25 per cent in a similar group of non-syphilitic families of the same social plane. He found that statistics from four cities of this country indicate that about 10 per cent of married pregnant women are actively syphilitic as shown by the Wassermann reaction. Statistical studies made in St. Louis and New York show that among the poorer classes from 5 to 6 per cent of the infant population are syphilitic. Surely such figures would prove an alarming prevalence of syphilis, and, therefore, it may be stated that in discussing this paper, Doctor Baker, of the Health Department of New York City, emphasizes that, judging from the number of deaths from syphilis among children within the first year of life, Doctor Jeans' figures are entirely contrary to New York experiences.

The Control of Midwifery

Chapin[4] discusses the ever present problem of the control of midwifery. The midwife is not indigenous, surely not in a manufacturing center; she comes with the recent foreign immigrants. Medical practitioners in general, and obstetricians in particular, denounce the midwife; social workers and public health nurses do not like her; and health officers do not consider her an asset to the community. The latter, however, while desirous of replacing her by something better, admit that she is not so inimical to public health as are many physicians. In some cities the midwives report births and cases of ophthalmia with greater promptitude than do the physicians.

For the prevention of infant mortality prompt returns are essential. There are many physicians who know little about infant feeding; their babies die, and the health officer can do nothing about it. The midwife is more likely to send her babies to the welfare station, where they are cared for by specialists. As a whole, therefore, the midwife can not be considered a direct hindrance to the prevention of infant mortality. In knowledge, the midwife must always be far below the physician and it is a safe deduction that she is not an institution to be fostered, but is rather to be tolerated only until such time as an acceptable substitute can be found. We allow non-medical individuals to provide glasses for our eyes and to attend women in confinement, but do not permit anything like it in any other specialty.

An Invidious Comparison

However, when a serious comparison is made between the results of midwives' practice and that of physicians, it is at times apparently unfavorable to the latter. A few years ago Williams aroused great interest in his argument that poor doctors have more deaths against them than have the midwives, and that there are many poor doctors. The majority of teaching obstetricians were of his opinion. Doctor Baker says that the morbidity and mortality, both of mothers and babies, at least in New York, are greater among those attended by physicians than among those attended by midwives. Dr. Van Ingen has presented figures, relating to the lower East Side of New York, which show that stillbirths are much more frequent in the practice of physicians than in the practice of midwives. The great fallacy of such statistics, of course, lies in the selection of cases. Difficult confinements gravitate to the physician or the hospital, while the normal cases remain with the midwife.

There are several reasons why there is a demand for midwives. They are cheaper. Many foreign women do not want a male attendant or, what is more probable, their husbands do not wish it. This is a custom or fashion that should not prove very difficult to change. In this process of education the public health nurse will be called upon to play an important rôle. The last important reason for the employment of a midwife can be found in the fact that she will incidentally also perform more or less of the household service.

In general, evidence shows that midwifery is decreasing, probably chiefly as the result of an increasing appreciation of good medical service.

Suggested Means of Control

Various plans have been adopted, or proposed, for solving the midwife problem. Some states by statute laws absolutely forbid her practice, but none of them has made a serious attempt to enforce the law or to drive out the midwife. Another plan, which may be developed in different ways, is to license the midwife. Such licensing may amount to a mere registration, with refusal of registration if the midwife prove careless or

[3] Jeans, Phillip C.: The Control of Venereal Infection, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.
[4] Chapin, Chas. V.: Control of Midwifery, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.

incompetent, or it may develop into a more elaborate system under which registration would be made dependent upon definite education, training, examination, and subsequent supervision. This latter system has been adopted in some of the eastern states.[5]

If midwives are to be supplanted, the offered substitute must appeal to the patrons as desirable. If, therefore, the midwife is to be supplanted by the physician, the latter must not cost more than the former, and the supplanting process surely will be more rapid if he does not cost as much. A free out-patient service certainly draws cases from the midwife. Wherever there is a medical school, such service is necessary for teaching purposes. Even if the patient is able to pay a midwife, it must be considered legitimate to draw her away from the midwife by free treatment. Thus at the Boston Lying-in Hospital the out-patients contributed in 1918 on the average $1.38 each, which was an appreciable help in meeting the low cost of the service.

That such a service pays from a public health standpoint is shown by the fact that maternal mortality in the last 5,000 out-patients was 0.04 per cent. That this low rate was not secured by sending an undue number of difficult labor cases into the hospital is indicated by the low mortality of 1.1 per cent among the house cases in the same year. Where there are no medical students available, an out-door service is best provided in connection with a maternity hospital. The country certainly needs a much larger maternity service, which can be and should be added to general hospitals. The utilization of a resident staff for out-door obstetric work makes for efficiency, as the work can be supervised by the hospital management and the service is sure to be more prompt and regular.

Patients on Part Pay Basis

The "pay clinic" has, for various types of service, been strongly advocated in Boston as a means of securing efficient treatment for a class of persons who can pay only a moderate sum, but yet sufficient in the aggregate to afford modest compensation to the physician. The Maverick Dispensary in East Boston makes a charge of $15, the usual fee of the midwife, and of this $10 goes to the physician. The physicians are men who are glad temporarily to take this service to perfect themselves in obstetrics. In discussing this paper Doctor Levy, of the State Board of Health of New Jersey, agrees that under regulation and supervision the adopted standards are better maintained by midwives than by doctors. Furthermore, he feels that obstetricians should not fear the existence of the midwife in perpetuity. "Elevating her status is a sly way to eliminate her, because as you elevate her standard she demands more for her services, and this must bring her finally in competition with the physician. By the law of the survival of the fittest, if the doctor is a superior individual, he will finally survive." A similar view is expressed by Doctor Baker who states that in New York by the constant supervision of the midwife, and the elimination of those who violate regulations, the number of practising midwives in ten years has been reduced from 3,000 to 1,600. "Midwives are a condition and not a theory. It is essential to remember that poor people who have to deal with them are guided by practical considerations rather than by academic theories."

[5] New York, New Jersey, and Pennsylvania.

Maternity Care in Foreign Countries

The essentials for public care of maternity and infancy in England are explained in a paper contributed by Mrs. Eleanor Barton,[6] representing the Women's Cooperative Guild of England, which Guild for several years has given special attention to this work. In the preparation of the General Insurance Act they insisted on the inclusion of maternity benefits, and, agitating public opinion by a literary propaganda, they had a maternity act passed by the House of Parliament in 1918. Under this Act a maternity benefit of thirty shillings for each child is given to the wives of men who are insured and come under the income tax limit. The women who go out to work, if they themselves are insured, receive benefits in their own rights, thus making a double maternity benefit. An attempt is made further to improve the situation by bringing the whole question of maternity under the Ministry of Relief now in process of formation. Bad housing and sanitation are responsible for much suffering, but ignorance and the absence of medical advice and help are also responsible.

It is vital to the welfare of all countries that an enlightened and generous care of maternity should replace the present indifference and neglect. There are many people who say to-day, "Yes, the husband and father should provide in this way. But this is not correct, not enough. We want the public service. After all, the child is the asset of the nation; and we want the nation to recognize that the welfare of the child is its business. During the war when the State wanted the boys they put their hands on their shoulders and took them, without any questions being

[6] Barton, Mrs. Eleanor: Essentials of Public Care of Maternity and Infancy, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.

asked. Now we want the State to realize that it is responsible in exactly the same way for its children. The question now is whether better service can be had by communal service, or leaving it to the individual. It seems that the individual service has broken down completely, and now we want to put in its place municipal and national service." The whole question of maternity should be placed under national supervision, so that every woman can receive expert maternity care, and nobody shall ask whether she is rich or poor.

The horrible situation among the Serbian population is vividly pictured by Doctor Lazarevitch.[7] Among them the question of child welfare is a most urgent one. There are at present in Serbia 100,000 invalids, 100,000 children in need of immediate care, and 50,000 orphans. These are the numbers in a country which out of a population of 4,500,000 during the war has sustained a loss of 1,330,925 who died from disease or were killed. "Notwithstanding the fact that our people are very strong and healthy, bad hygienic conditions exist and ignorance of the fundamental rules for the proper care of the expectant mother and the baby prevails. The State, which has been obliged to buy guns and munitions to insure its very existence, has had neither the time nor the money to devote to hygienic conditions and the care of the mother and the baby." The new United Kingdom of the Serbs, Croats, and Slovenes, on February 5, 1919, created a state Department of Child Welfare.

Welfare Work in Cities

The urban problems of prenatal care are discussed also by Doctor Helmholz,[8] of Chicago. It seems that at the present time the larger cities of this country entirely neglect this side of infant welfare. Experience shows that in the prenatal work one nurse can attend to approximately three hundred pregnant women; in postnatal work she can care for about one-half of this number in the course of a year. The chief requirement consists in adequate hospital facilities for all difficult cases and an ample obstetric outdoor service to care for the mothers who remain at home. While the close coordination between the prenatal and obstetric work is important, still more vital to the welfare of the infants is constant and uninterrupted supervision immediately after birth. In Chicago, in spite of all efforts, more than two-thirds of all babies come under the care of the Infant Welfare Society over two months old. As the death rate is the highest during the first month of life, the postnatal work still is missing this most important period of the infant's life. In speaking of the artificial food question the author expresses as his opinion that in the not very distant future powdered milk will in a large measure replace all fresh milk because it is safer and cheaper. Also, the housing question needs more attention. The public has not as yet been educated up to the importance of this factor in its relationship to infant mortality.

Lobenstine[9] describes the maternity centers in New York. Never before have nations been brought to such a keen realization of the value of the mother and her child. With the frightful losses at the front, with the startling ravages of the world plague continually before us, and with the inevitable injuries wrought in the home by the strenous efforts of the war, conservation of the infant's life stands out as the pressing need of the hour. Childbearing still possesses for the mothers many dangers, some of which are avoidable, and some of which are not; but this we know definitely, that the closer the supervision during pregnancy and the better the care at the time of delivery, the fewer will be the complications and the more satisfactory will be the results. The number of partial and complete invalids as the result of poor nursing, inefficient medical attention, or meddlesome midwifery at the time of abortions or labor, can not be estimated.

The Danger in the Life Span

The studies carried on by the Federal Children's Bureau, as well as by certain public and private organizations all strikingly reveal the fact that "the nine months of intrauterine life coupled with the first month after birth represent the high mark of danger in the life span of every individual." With properly organized clinics one could expect a reduction of from 30 to 35 per cent in the deaths under one month, a material lowering in the number of stillbirths, a reduction in premature births of at least 25 per cent, and in the maternal death rate of from 60 to 65 per cent below the general rate of unsupervised cases. This conservation movement is a great social undertaking. It is a fight against poverty, filth, rum, tuberculosis, and ignorance of the barest fundamentals of health.

New York City began two years ago to develop a plan for the coordination and extension of maternity care among the poor. After a thorough study of the distribution problem a zoning system was designed. At present the borough is divided

[7] Lazarevitch, Dr. Radmilla Milochevetch: Serbian Experience, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.
[8] Helmholz, Dr. Henry F.: Urban Problems, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.
[9] Lobenstine, Dr. R. W.: Maternity Centers in New York City, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.

into ten zones. The districting has many advantages. The hospitals draw their patients from their particular zone, rendering prenatal supervision of the registered cases far easier. It encourages patients to seek hospital aid more readily because of their greater familiarity with the hospital in their own neighborhood. The hospital forms the basis for the entire maternity center plan. A maternity center should be the center of an educational campaign for the prenatal care of the mothers in the district, and the fathers should not be neglected. The chief point in the whole scheme is a good follow-up system. The doctors and midwives in the district must be urged to bring their cases to these clinics for consultation. They should be open day and night for emergency calls; they should see that a doctor or midwife is supplied for every labor case, and a nurse for every abnormal labor. In the discussion, the Boston idea of better medical service for the middle classes is emphasized by Mr. William Lowell Putnam. The people of moderate means are the people who are least cared for in the matter of protection of the health of mothers and infants. For the past five years an attempt has been made in Boston to bring this care within the reach of those mothers who can not afford the prices required by the best physicians, and yet who should not be offered charity, and who under no conditions would be willing to accept it.

The Needs of the Rural Mother

Obviously, as pointed out by Miss Elizabeth G. Fox[10] of the American Red Cross, the rural mother is in need of this same prenatal, natal, and postnatal care offered the city mother. However, it is quite one thing to outline these essentials, and quite another to provide them. In the rural problem one of the chief difficulties is the inaccessibility of medical care. Many country women simply have to do without medical supervision, entirely relying on their own resources and the help of neighbors. Many country people also are unable, or unwilling to pay the cost of good medical care. They have not yet learned to regard childbirth as a serious and important event. Many country doctors are not informed concerning the best obstetric practice. Normal cases under such circumstances usually survive this amateur assistance, but abnormal cases suffer a high injury and death rate. Many counties and communities have not as yet installed a public health nursing service. If well developed, such service could be made to include prenatal, natal, and postnatal care.

Another foe, usually more beforehand than the doctor or the nurse can be, is the patent medicine vendor. Finally, behind all these difficulties lies the ignorance or indifference of the farmer and his wife. The rapid development of rural public-health service offers one of the most immediate and tangible remedies. Adequate obstetrical service will have to be placed within the reach of all, through health insurance, mothers' pensions, some form of state aid, or else through a more just distribution of the profits of labor. Cottage hospitals or county maternity hospitals are necessary for the proper care of complicated cases. The Red Cross through its plan to promote rural health nursing hopes to contribute toward the protection of maternity and infancy in this country.

Dr. Julius Levy, of the New Jersey State Board of Health, adds that it is important to realize that the real solution of the rural problem lies in the responsibility of the state department of health. The most worth while effort of the Red Cross or any other organization is merely to insist that the state department of health shall perform its proper function in protecting the health of the rural population, and that the function of private institutions is not to do in piecemeal the things that are needed in rural communities.

British Control of Midwifery

In describing British organization Sir Arthur Newsholme[11] explains the working of the Midwives Act of 1902, whose provisions have been enlarged and rectified by the Maternity and Child Welfare Act, passed in August, 1918. "Although we have enjoined upon local authorities the necessity of the strictest economy in public expenditures, we have urged increased activity in work which has for its object the preservation of infant life and health. We are glad to note that the great majority of local authorities have realized the value of continuing and extending their efforts for child welfare at this time." A beginning in grants for child welfare work was made by the Board of Education for the establishment of schools for mothers, and similar institutions in which collective instructions to mothers was given and some degree of regularity of attendance of the mothers was secured.

In 1914 the Local Government Board sent a circular letter and covering memorandum by their Medical Officer which may be claimed to have initiated maternity and child welfare work on a larger scale, more generally distributed throughout the country, and more completely covering

[10] Fox, Miss Elizabeth G.: Rural Problems, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.

[11] Newsholme, Sir Arthur: British Organization, s. 1, Pub. 60, U. S. Dept. of Labor, Children's Bureau, Washington, D. C.

the whole sphere of medical and hygienic work for this purpose than had previously been envisaged. The chief burden of the additional work to which local authorities were urged was that there should be continuity in dealing with the whole period from before birth until the time when the child entered upon a school register. The memorandum contemplated that medical advice and, where necessary, treatment should be continuous and systematically available for all expectant mothers and for children till they enter school, and that arrangements should be made for home visitation throughout this period.

Grants were promised to local authorities or to voluntary agencies for work done under this scheme amounting to one-half of the total approved expenditure. About the same time a circular was sent out by the Board of Education promising similar grants for schools for mothers. The increased work since that date can be seen in the fact that while in the financial year 1914-15 the grants of the Local Government Board amounted to approximately £11,500, and of the Board of Education to not quite £11,000, they had reached in the financial year 1917-18 the sums of over £122,000 and £24,000, respectively, while they were estimated for the next year as £209,000 for the Local Government Board, and £44,000 for the Board of Education.

These grants do not cover the entire scope of child welfare work for England. Thus, for instance, the Ministry of Munitions took an active part in arranging for welfare work in the establishments for which it was responsible, and this work in some instances included special care for pregnant women and for nursing mothers.

At the conclusion of these conferences of the U. S. Child Welfare Department committees were appointed to formulate minimum standards in regard to children entering employment, for the protection of the health of children and mothers, and for the protection of children in need of special care.

Minimum Requirements for Protection

A subcommittee proposed the following minimum requirements for the public protection of maternity:

1. Maternity or prenatal centers, sufficient to provide for all cases not receiving prenatal supervision from private physicians. The work of such a center should include:

(1) Complete physical examination by a physician as early in pregnancy as possible, including examination of heart, lungs, abdomen, urine, and the taking of blood pressure; internal examination and pelvic measurements before the seventh month in primipara; examination of urine every four weeks during early months, at least every two weeks after sixth month, and more frequently if indicated; Wassermann test when indicated.

(2) Instruction in hygiene of maternity, and supervision throughout pregnancy, through at least monthly visits to a maternity center until end of sixth month, and every two weeks thereafter. Literature to be given mother to acquaint her with the principles of infant hygiene.

(3) Employment of sufficient number of public health nurses to do home visiting and to give instruction to expectant mothers in hygiene of pregnancy and early infancy; to make visits and to care for patient in puerperium; and to see that every infant is referred to an infant welfare center.

(4) Confinement at home by a physician or a properly trained and qualified attendant, or in a hospital.

(5) Nursing service at home at the time of confinement and during the lying-in period, or hospital care.

(6) Daily visits through fifth day, and at least two other visits during second week by physician or nurse from maternity center.

(7) At least ten days' rest in bed after a normal delivery, with sufficient household service to allow mother to recuperate.

(8) Examination by physician before discharge of patient, not later than six weeks after delivery.

2. Clinics, such as dental and venereal clinics, for needed treatment during pregnancy.
3. Maternity hospitals, or maternity wards in general hospitals, sufficient to provide care in all complicated cases and for all women wishing hospital care; free or part payment obstetrical care to be provided in every necessitous case at home or in a hospital.
4. All midwives to be required by law to show adequate training, and to be licensed and supervised.
5. Training and registration of household attendants to care, under the supervision of physician or public health nurse, for sickness in the home and for the home during sickness.
6. Education of the general public as to the problems presented by maternal and infant mortality and their solution.

WILL MIDWIVES GRADUALLY DISAPPEAR?

From one-third to one-half of births in Chicago are attended by midwives, according to estimates of members of the Chicago Medical Society who have appointed a committee to cooperate with the state department of registration and education. Since 1917, when the registration of midwives was first required by law, there have been

3,281 licenses issued in Illinois, and it is estimated that more than 500 are practising in Chicago. In 1915, half the births registered were registered by midwives. Medical men are divided in their opinion as to whether or not more training and educational facilities should be offered midwives, or whether lack of such assistance will assist in the processes automatically working for the disappearance of the midwife.

THE PRACTITIONER'S DIET NUMBERS

The reviewer would require the Shavian method were he to do full justice to the July and August, 1919, numbers of the *Practitioner*, London, which are devoted to diet in health and disease. As an expression of British nationalism and British methods the two volumes are even more interesting than they are as indicators of the British scientific thought on the subjects discussed. The July number is devoted entirely to diet in health, and, though the student of dietetics finds in it many things with which he does not agree, he nevertheless must recognize the broad clinical experience and the sound judgment which form the basis for all the papers. It is rather interesting to find milk condemned and idealized as a perfect food in different pages of the same magazine.

Part I. Diet in Health

In the introduction the editor advances a plea for the use of more uncooked foods, allowing the imagination to range back to the dietetic habits of primeval man when cooking was unknown to man. Cookery became a fashion because of its "gustatory allurements . . . and it is in the increased and thus unnatural palatability of cooked foods that we must seek for part, at any rate, of the explanation of habitual over-eating." Cooking, also, probably affects the composition of foods.

Professor W. M. Bayless gives a brief review of the physiology of nutrition. Emphasis is laid upon the fact that for most people a greater quantity of protein is desirable than a minimum actually necessary, a point which has previously been emphasized by Graham Lusk. Bayless, also, recalls that protein should be of mixed origin, especially when being used by the growing organism, because of the variations in the amino-acid content of the different proteins. "Although both protein and carbohydrate are necessary, it is at present impossible to make the same statement with certainty in respect to fat. There is, however, no doubt that it is desirable, if only for the preparation of attractive dishes by the cook." The 3,300 calorie diet per man of 70 kilos which is recommended by the Royal Society Committee contains:

	Grams	Calories	Per Cent
Protein	70	280	8.5
Fat	90	810	25
Carbohydrate	550	2200	67

This, incidentally, differs from the American army proportion of 14, 31, and 55 per cent, respectively.

Parkinson's contribution on dietetics in childhood and youth contains many unproved statements regarding what is good and bad for children. For instance, the list of foods which should never be given to children under six years contains the following: pork, ham, sausage, tinned foods, goose, duck, game, etc.; cucumbers, radishes, tomatoes, and raw celery; hot new bread and cakes containing dried fruits; nuts or any kind of pastry; bananas. The reviewer knows of no scientific basis for the inclusion of nuts, raw celery, tomatoes, or ham in a list of harmful foods.

"Dietetics in Adolescence," by Clement Dukes, is a really remarkable clinical contribution, which suggests that "the roast beef of old England is largely responsible for the well known stamina of the Anglo-Saxon race and the winning of the war." Ultra-scientists might object to the phrase "carbohydrates in the form of fat and sugar" or to the conception of nature converting food into lymphocytes; but the man dealing with the feeding of young people will get much of practical value from reading every word of this article. Milk is a standard food for those in process of growth and should continue being given largely during youth.

The amount of nourishment required by the growing organism is great and "stinting is synonymous with stunting. In the case of the girls whose growth between the ages of 11 and 16 is amazing, stinting of food essentials amounts to positive cruelty, and they are apt to suffer throughout life for this serious defect. They are sometimes told that it is unladylike to eat much, whereas, they should be counseled that it is their bounden duty to eat as much and as varied wholesome food as they can possibly command, so that they may develop as Nature purposed." Adequate feeding of the young is the cheapest policy, and two essentials are adequate knowledge by the caterer and personal supervision. Monotony of food must he done away with, especially in feeding groups. It is only too easy to over-feed the adult, but superabundant nourishment is almost impossible in those rapidly growing, provided, of course, the food is not rich in quality. Sufficient time must be allowed for meals and special consideration given to the slow eaters. The main food supply is desirable in the early part of the day.

The staple articles of diet for adolescents are bread, of which the whole meal breads are more suitable although less palatable; butter, which, of course, is a standard food. Oatmeal porridge is ideal for adolescents because of all cereals it contains the largest percentage of protein, fats, and mineral substances. Sugar and starch should furnish a large part of the diet. Fresh milk must always be an integral part of the diet of the adolescent. "It is more than thirty years since I prevailed upon that great Head-master of Rugby, John Percival, late Bishop of Hereford, to substitute, in place of beer, an equal quantity of milk at supper, with untold value to this renowned school from every point of view."

In this connection it may be recalled that the American dietary is deficient in milk, which is especially true among the relatively poor who do not appreciate comparative food values. Meat should be given twice a day to adolescents, at breakfast and mid-day dinner, but should not be given later in the day; and a daily quantity should average one pound of uncooked meat, including fat. Soup is beneficial, mainly because it furnishes the vehicle for vegetables and cereals. Fat is an absolute necessity, especially in the form of milk, butter, bacon, and suet pudding. The vegetables, although difficult to feed to adolescents, are essential to prevent malnutrition. Fruits serve the same purpose, but are better liked. The diet, likewise, must not be lacking in mineral salts. Cheese is wholesome for adolescence. Alcohol should be conspicuous by its absence. The chief cause of indigestion in healthy adolescence arises from drinking tea or coffee too strong, too much, or too frequently. Water must be given frequently.

Charles Mercier discusses dietetics in senescence. "Less is known about dietetics than about any other department of physiology, and if anything is known of the modifications of diet that are desirable in senescence, it is not known to me." Yet he gives a rather convincing argument for a diet containing rather less amounts of car-

bohydrate and fat and greater amount of protein than is usually recommended to the man growing old. In fact, Mercier goes so far as to suggest that the man who cuts down his ration of protein below an ill defined minimum will invariably suffer from inefficiency and confusion of mind; and if the deficiency is great enough and is continued long enough, will land himself in a lunatic asylum. "No weight of beefsteak will turn a dullard into a genius; but a man cannot attain or maintain his intellectual best without an ample ration of protein. . . . The beverages appropriate to on-coming old age are alcohol in its various preparations, tea, and coffee. Water is a perilous beverage for anyone, but especially for those whose resistance to the attacks of microörganisms is beginning to fail along with their other powers. Alcohol has its dangers, no doubt, but they are nothing in comparison with the dangers of drinking water."

Dietetics in old age is treated by Thomas Bodley Scott, and Campbell contributes some general observations on diet, the first of which is that milk in any form is not necessary for the weaned child.

Lieut. Col. S. Wright discusses the dietary of troops in the home army during the war, which contains nothing that was not discussed in the last number of this journal.

Part II. Diet in Disease

Diet in acute disease is treated by Sir John F. H. Broadbent. This article starts with an eulogy of milk as the most suitable diet in acute disease. The body of the argument does not agree entirely with the American conception so well worked out by Warren Coleman, and one misses a discussion of the high caloric diet in typhoid fever. Broadbent mentions that a more liberal diet may be of little risk, but believes that the fluid diet, of which milk forms the basis, is the most suitable.

W. Langdon Brown discusses the dietetics of diabetes and glycosuria and reviews in an excellent manner the newer methods of treatment based on the studies of Allen in this country and Graham in England. The diabetic "must be permanently under-fed to avoid overtaxing his damaged powers of assimilation. Clearly the outlook depends upon how much these powers are damaged. If he can balance his metabolism, when the caloric food is adequate to maintain life and a fair display of energy, the outlook is good; if he cannot acquire a balance until the intake is reduced too much for this, the outlook is bad, for there must be a limit to this process of reduction."

The statistics from the newer treatment of diabetes quoted by Brown are interesting. Formerly, at Guy's Hospital, 16.9 per cent of the cases were fatal during the first year of the disease; but now only 5.4 per cent. Formerly, the average mortality rate was 23 per cent of all cases admitted; now; it is 7.7 per cent. By the older methods only 9.8 per cent were rendered free from sugar, even for a single day; now, 73.5 per cent are rendered free for a longer or shorter period. Brown doubts Poulton's conclusion that a patient who is treated within three months of the onset has a 75 per cent chance of being kept sugar-free indefinitely.

Leonard Williams writes on diet in obesity and, although the searcher for practical menus to give his patient finds nothing in this article, he will find a fascinatingly written plea for the use of uncooked foods.

Dietetics in chronic arthritis is written by F. G. Thomson, and the discussion is based on the assumption that rheumatoid arthritis, synovitis, fibrositis, gout and osteo-arthritis are all closely connected with intestinal infections and intestinal stasis. "To sum up, the diet in rheumatoid arthritis should consist of light, simple, easily digested food, strictly limited to such quantities as the patient can digest. In severe cases, and those which do not improve on this régime, the total exclusion of meat may be advisable; whereas in others, especially those with symptoms of gastric ulcer, or such as are intolerant of starch, a diet consisting chiefly of eggs, milk, milk puddings, custard, and the like, may be carefully tried. The inclusion of vitamins is essential, and a certain amount of raw fruit, salad, eggs, milk, and other vitamin-containing food should never be omitted. In cases in which it assists digestion, a reasonable amount of stimulant may be allowed. Apart from assisting in this way, it will do no good nor, so far as one can see, does it do any harm."

In fibrositis the indications for diet are the same as in rheumatoid arthritis and in osteo-arthritis; the two objects of diet should be the promotion of a healthy condition of the gastro-intestinal tract and a diminution of the tendency to corpulence. "The diet should consist chiefly of fish, poultry, game, and the lighter kinds of meat; eggs, fruit, salads, green vegetables, junket, and cheese. Bread must be replaced by dry toast, rusks, or dry, unsweetened biscuits. Puddings and pastry should be entirely eliminated."

P. Bergouigan writes exceedingly well and clearly on the diet in renal and circulatory diseases, giving practically all that is known in a succinct and easily readable manner. The classification of renal disease adopted is that of Widal and Castaigne; (1) acute nephritis, in which a strict milk diet is an absolute necessity; (2) simple chronic albuminous nephritis, in which an ordinary mixed diet of meat and vegetables, with meat rather restricted, is all that is required; (3) dropsical nephritis, where a strict chlorid-free diet should be chosen; (4) chronic hypertensive, or uremia-provoking nephritis, in which the diet depends to a certain extent on the stage at which the disease is treated. "If, in the early stage of the disease, a prophylactic diet containing little salt and very little nitrogen is regarded as unnecessarily severe, the same cannot be said of the later stages, when it may even be necessary to order a complete fast or at best a strictly fruitarian *régime* for several days in succession." (5) Lithiasis, in which the diet is the same as that for gout and is, therefore, poor in nitrogen.

The technic of the dietaries is given in detail. Special emphasis is laid on the water intake, concerning which the author says decision is often difficult. In mild cases of edema due to chlorid retention, the fluid intake should be reduced to 1,000 cc. or 500 cc. in twenty-four hours. In severe cases with cardiac dilatation, fluid should be entirely suspended for one or two days. At a later stage, the maximum amount allowed should not exceed 1,000 to 1,250 cc. In uremia-provoking nephritis 1½ to 2 liters of water are necessary; in lithiasis, 2 to 2½ liters.

Pritchard writes on the connection between food and disease in infants, in which the main argument seems to be, "the great majority of the diet diseases of infants are due to excess in the total quantity of food, irrespective of the precise qualitative make-up. The injuries caused are in the main due either to intestinal toxemias or to incomplete combustion by the processes of internal metabolism. The organism bristles with protective mechanism to prevent these serious results of over-feeding, but the calling into play of even the least harmful of them produces pathological results."

Diet in tuberculosis and pulmonary disease by Marcus Paterson reviews this author's well known ideas. Overfeeding should never be practiced in tuberculosis, and the diet must take into consideration the patient's specific resistance and dyspepsia due to any other cause.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

MODERN HEALTH MACHINERY IN DIAGRAMS

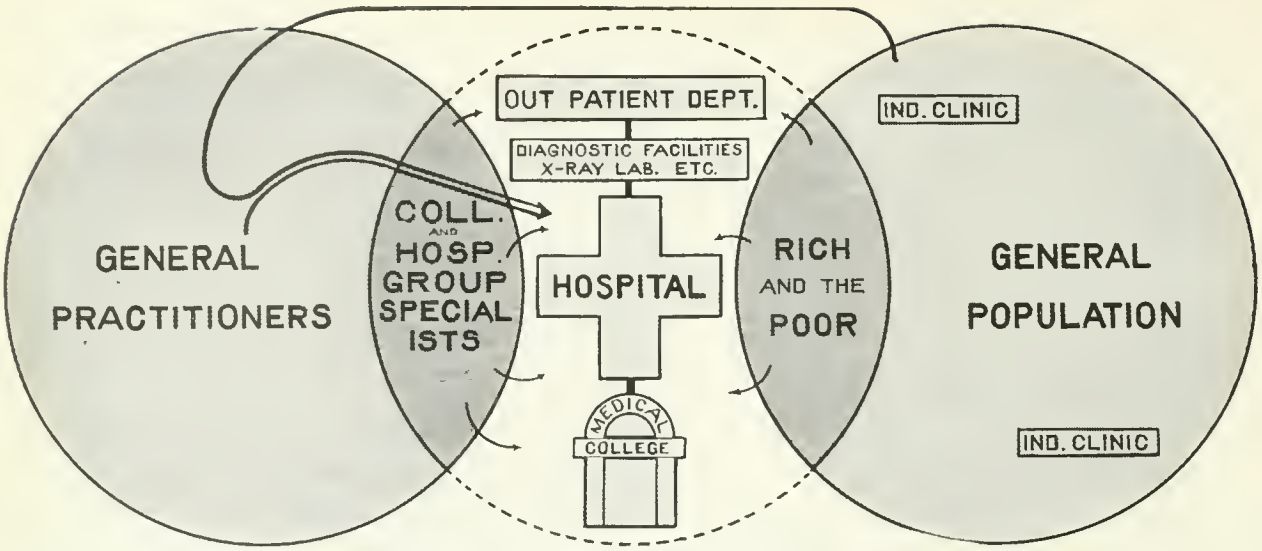
A CONTINUED effort has been made in these columns to impress the profession with the necessity of a realization that the practice of medicine is threatened with organic changes; that these changes will be planned by those who are less qualified than ourselves and will be thrust upon us from without, unless we immediately and vigorously attack our own shortcomings. With the hope of stimulating discussion in this regard several suggestive diagrams are herewith presented. In the first diagram an attempt has been made to portray the outstanding features of medical practice as they obtain today. It purposes to show how inaccessible are the best diagnostic facilities and treatment that the profession affords to the average practitioner and to the average patient. These facilities, provided at public expense, should not be accessible only to the rich and the poor. Furthermore, the Chinese wall between the leading physicians, the hospital groups and teachers, and the profession at large, must be removed. Efforts must be made to democratize knowledge to promote better medical service for the great producing masses of the people. The present unwieldy scheme makes higher standards and adequate medical service difficult.

The keynote of the second diagram is the group diagnostic clinic, just in the infancy of its development in this country. A system of early diagnosis, prevention, and cure is the only means at hand that may make unnecessary that colossal state-wide structure, social insurance, intended to equalize and distribute the cost of burdensome illness. The proposed reorganization of medicine, herewith diagrammatically represented, is not suggested as an alternative for social medicine or compulsory sickness insurance. At all events, some rearrangement of our methods appears fundamental to the economic application of the science of medicine. It does seem certain that no social system of medicine should be considered legislatively until we have cleared away the present *debris* of the intensively individualistic method of practice. Failure so to anticipate any proposed legislation will but invite medical chaos, and deny to the great producing groups the best that the profession has to offer. Here, even more than in England, the panel system will attract the less desirable members of the profession. We must take care lest in saddling the load of illness upon the state, we do not at the same time still the public conscience as to the crime of permitting preventable disease to go on unchallenged, and thereby weaken the present interest in and expenditure for preventive public health activities.

The proponents of social insurance imagine they have hitched their wagon to a star, whereas we mortals know that they have simply got the cart before the horse. Let us be forewarned, moreover, that in the present state of public mind many people are engaged in legislative star-gazing, and it behooves the profession to keep its feet as well as its eyes on the ground.

The following considerations further amplify the thought underlying the diagrams and charts, and should be taken into account as the same are studied:

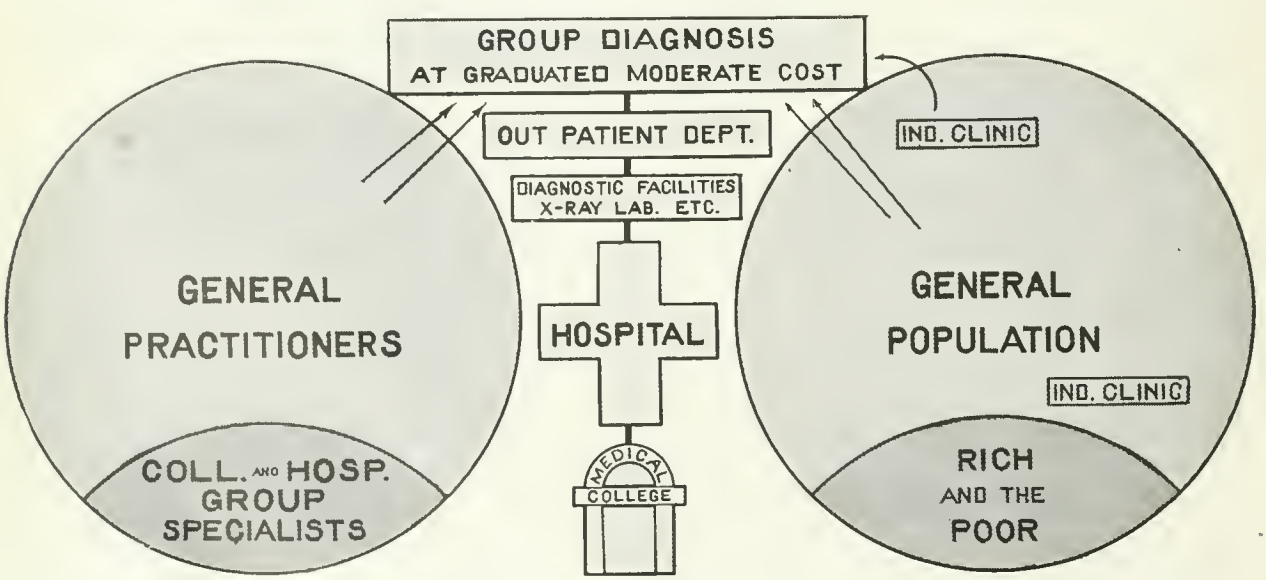
1. The field of medical endeavor, preventive and curative, if fully developed, is larger than could to-day be handled by all of the physicians and present hospitals and clinics.
2. The development of industrial medicine as a specialty has stressed the immediate and economic value of preventive health work to industry and labor. It is encouraging the extension of public health control.
3. The industrial physician is in turn teaching the earlier and more frequent use of the family physician and consultants, thereby improving the financial status of the profession. His reference of patients to specialists increases their practice.
4. High type of industrial practice teaches the worker to select for himself and his family a



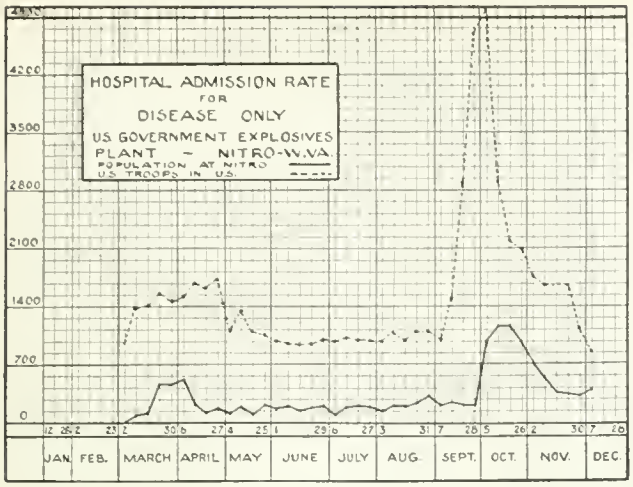
Outstanding features of medical practice as they obtain to-day are portrayed in this diagram. The most obvious is the inaccessibility of the best diagnostic facilities and treatment to the average practitioner and the average patient.

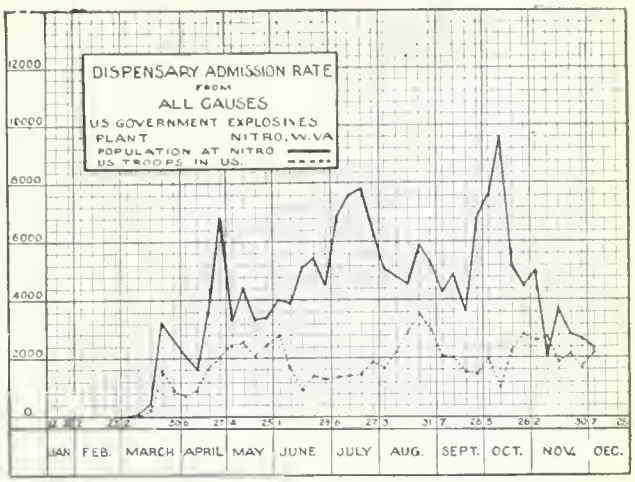
good medical practitioner rather than the average type. This selection should result in more useful service and fewer death certificates.

5. Higher standards of practice must prevail. To accomplish this the profession at large must be kept in closer touch with the teaching portion of the profession. Diagnostic service, group consultation and clinics, laboratory, and x-ray facilities must be made more accessible. This plan will perhaps reduce on the average the large incomes of the specialists, but will improve the financial status of the practitioner. The latter's energies will more and more be engaged in keeping people well.
6. There is considerable dissatisfaction in the laity with our conduct of the medical situation. A strong current for the socialization of medicine is under way. This can be resisted by the profession only through an intelligent, intensive study of the social and economic status of medicine which will result in constructive substitute measures and adjustments being offered to meet the situation. The day of extreme individualism in medicine is past. It remains for us to determine whether we are sufficiently statesmanlike to put our own house in order, and thereby avoid the deadening effect of such measures as social insurance so generally adopted abroad.
7. Increased production the world over is paramount. Most countries are bankrupt. New



The keynote of this diagram is the group diagnostic clinic, the only means at hand that may render unnecessary that statewide structure, social insurance. Rearrangement of medical methods along such lines as the diagram indicates is fundamental to the economic application of the science of medicine.





At left: Chart shows that the hospital admission rate in the army, where sick call is more or less perfunctory, is three times as great as the rate of the population at the government plant at Nitro, W. Va. At right: The dispensary admission rate of the army, as the chart shows, is but one-half the dispensary rate of the population.

energies must be released through improved industrial relations and through improved health of the worker, so that he may produce more and earn more. The physician holds the key to both these situations. Will he use his opportunities?

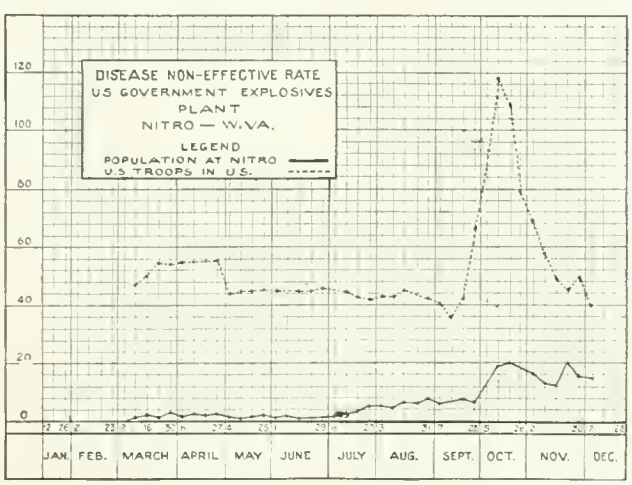
Increases Dispensary Admission Rate

We are indebted to Dr. J. A. Watkins, formerly with the United States Public Health Service and now with the Department of Industrial Medicine, University of Cincinnati, for the charts indicating in a most graphic way the effect of an intensive effort at preventive medicine on the disease non-effective rate. In charge at Nitro, W. Va., this industrial physician, stressing the importance of accessible clinics for early diagnosis and attention, to reduce hospitalization, brought remarkable results which strongly argue for the the development of group diagnostic clinics as indicated in the diagrams presented herewith. Doctor Watkins' charts are the more forceful in that his results are graphed alongside those of the army. It is a matter of general acceptance that sick call in the army is a more or less perfunctory act, and perforce followed by a higher hospital admission rate and hence a higher disease non-effective rate.

It would seem remarkable that the disease non-effective rate of the Army should be seven times that of the population at Nitro. This fact must be taken into account with the further facts that the dispensary rate of the Army was but one-half of the dispensary rate at Nitro and, further, that the hospital admission rate of the Army was, on the other hand three times as great.

The Army Dispensary Figures

Some objections may be raised to any such comparisons, but it is necessary to contrast these Nitro experiences with other large group data properly to evaluate them. Urban statistics are not only unavailable, but are not comparable in many respects. To a certain degree neither are Army statistics truly comparable; however, conditions existing in Army mobilization camps in the United States during this period of time more nearly approximated conditions as they existed at Nitro. Therefore, for the purpose of graphic representation, they serve our purpose. These charts and figures are offered for what they are worth. It does seem that they do bear out the position that the industrial physicians have taken, — that the place to do effective preventive work is at the industrial clinics, which are accessible at any moment of the day, and are teaching the worker to come to the individual physician for his most trivial sickness, and are thereby reducing the more serious illness and lessening the absence from work.



The disease non-effective rate of the army was seven times that of the population at Nitro, W. Va., a plea for industrial clinics.

THE APPLICATION OF WAR SURGERY TO INDUSTRIAL PRACTICE

By DRURY HINTON, M.D., Medical Supervisor, Harrison Works, E. I. du Pont de Nemours & Co., Philadelphia*

WAR is an industry and the injuries are industrial accidents occurring in the business of war. War differs from industry only in that the injuries are more numerous, and the destruction more extensive. In war the man power moves rapidly at times; hence the provision for those who are injured must in part be mobile. War injuries affect healthy young men, those who best react to trauma. This is not true of other industries, but compensation is provided by the circumstance that surgical help is immediately available, while in war injuries this is rarely the case.

The larger surgical lessons taught by the enormous clinical material incident to the recent boom in the industry of war bear upon: (1) The treatment of shock, (2) the prevention and treatment of tetanus, (3) the treatment of open fractures, (4) the treatment of infected joints, (5) the treatment of wounds, and (6) the treatment of chest wounds.

The Treatment of Shock

Practical experience and laboratory research in the zone of war activity have proved that in shock strychnin and camphorated oil have no value; indeed the reverse, and that rest, heat, relief of pain, by morphia if necessary, and an addition to the blood volume by transfusion give the best results. It has further been shown that dead tissue undergoes protein breakdown with the production of toxic substances which, when absorbed, may cause and aggravate shock.

Emphasis should be laid on the fact that in the presence of a severely crushed part, the best way to avoid shock is by the immediate excision of all dead tissue.

Doctor Cannon has shown in experiments that if an animal's limb is severely crushed, shock is produced. On the other hand, if the blood supply is first cut off by means of a tourniquet, shock does not occur, though it promptly appears when the tourniquet is removed. However, should the wound be thoroughly treated surgically and the tourniquet removed, shock does not develop. Therefore, in a wounded man, if a tourniquet is in place, it should not be removed until the dead tissue is excised, and it follows that a tourniquet until dead tissue may be removed is both rational, to arrest bleeding, and desirable to prevent absorption.

Treatment of established shock has been preferably to wrap the man in blankets in the folds of which are numerous hot water bottles. Heat supplied in this way is more effective than the electric light, inasmuch as evaporation is less. The patient is given enough morphia to stop pain, and one to two pints of saline, by enteroclysis or intravenous method, or, preferably, a transfusion of 800 cc. of whole blood. Thorough operation as soon as possible is indicated.

In an experience of fifty odd transfusions with the Kempton-Brown tubes for shock, hemorrhage, or both, it was found possible for one man to do the actual operation in ten to fifteen minutes on the ward. The experience of the American Expeditionary Forces has been that the citrate method is simpler, and almost as efficacious, requiring less skill in operation and less time to administer the blood. However, if available, whole blood is always preferable to the citrated blood. The incision for a transfusion need never be longer than three-eighths of an inch.

The Prevention and Treatment of Tetanus

The experience of war surgery has shown that the prevention of tetanus is a comparatively simple matter. Furthermore, it has proved that the immunity conferred by the tetanus antitoxin is of short duration. It has been found by the accumulated experience of many medical men, that the best way to administer the antitoxin for the prophylactic effect is to give three doses at week intervals, a primary dose of 1,500 units followed by two other doses of 500 to 750 units. In industrial practice tetanus may occur from puncture wounds by such instruments as rusty nails. There are industries however, *e.g.*, the steel industry, in which tetanus rarely occurs.

After tetanus has developed, it has been shown that the introduction of the tetanus antitoxin in enormous doses, preferably by intravenous and intramuscular injections, has given the best results. Therapeutically 300,000 units is a small dose. The British experience of good results from the intrathecal injections has not been duplicated by experiments in this country.

*Read before the Ninth Conference of Industrial Physicians and Surgeons with the Department of Labor and Industry, Harrisburg, Pa., September 22, 1919, in cooperation with the annual session of the Medical Society of the State of Pennsylvania.

The Treatment of Open Fractures

The best treatment of open war fractures has been: the early incision of the wound, not manipulating the bone until the wound surfaces have been thoroughly cleaned up; then the treatment of the bone fragments by the Hites-Boyer modification of the Leriche technic; in other words, the removal only of those fragments of bone which are not attached to periosteum, and of those which interfere with drainage. The fifty-one fractures closed by myself were treated however by the Leriche technic, which is apparently the better method where early closure is desired. Cautious closure without tension or dead space, and with due attention to drainage where indicated, is advised. It is best to close without drainage where possible. In those wounds in which there is a fracture but in which one is unable to close directly, it is a good procedure to make two lateral incisions, thus relieving the tension on the skin sufficiently to permit closure over the bone. In this way two wounds of the soft parts are left, but the danger of an osteomyelitis is materially reduced.

Proper splinting of the fractures deserves consideration. The most important fracture is the femur. The Thomas splint serves here admirably. Likewise the Thomas arm and the Jones arm splints are most useful in fractures of the humerus. Traction is applied by tapes or gauze fastened to the part by Sinclair's paste. For fractures of the lower third of the femur and when it is desired to flex the knee joint, the caliper extension modified by Doctor Furness is both simple and practical.

The Treatment of Infected Joints

Another benefit accruing to industrial practice from war experience is the dictum of Wilms and Gosset on the treatment of wounds involving and in the vicinity of joints, particularly those which are infected.

From the very beginning, full motion of the injured joint by the patient seems to have given excellent results, though contrary to all previous surgical belief. This has been successful even in panarthritis of the knee; one may see the patient moving the joint, and the pus squirting out at each flexion and extension.

The Treatment of Wounds

War surgery has demonstrated what has been long known, *viz.*, that the dead never come to life, whether it be mass death or molecular death; that molecular life needs a free supply of blood flowing through its supplying vessels.

The lessons of largest application and hence of greatest importance bear upon the treatment of wounds. These are: (1) the fact that blood flowing freely through its vessels is clinically the most effective antiseptic known to science; (2) that dead tissue is always a fine culture medium, and cannot be sterilized by any available antiseptic. From which it follows, and has been clinically proved in hundreds of thousands of cases, that dead tissue in mass is and invariably becomes infected and healthy tissues cannot be approximated and heal while dead material remains.

The clinical application of these lessons is that all dead materials must be removed by clean dissection and the sooner done, the greater chance of good results ensuing.

After the removal of dead tissues, the living must be approximated without dead spaces, and without tension to cut off the blood supply. Should dead space be left, it is filled with blood and serum, a dead non-vascularized tissue, offering favorable conditions for infection, which in vascularized tissues would be overcome by blood resistance.

If, after the removal of dead tissue, the vascularized surfaces can not be approximated at once without suturing with such tension that blood supply is cut off, war surgery has taught several methods of dealing with the problem efficaciously. These methods briefly are:

(1) *Partial Closure.*—This method consists of the approximation of as much of the wound surface as will come together without tension. After five days it will be found possible to close more or all of the remaining gap.

(2) *Flaps.*—The use of flaps is adopted for large areas, particularly if they be circular or oval.

(3) *Relaxation incisions.*—This procedure is adapted in particular to closure of compound fractures.

From a personal experience of 270 wounds sutured between the dates of August 7 and October 27, 1918, with an average delay of thirty hours after receiving the wound before reaching the base, good results were obtained: 228, 84.43 per cent, were successful; 10, 11.87 per cent, were failures; 32, 4.7 per cent, were partially successful, inasmuch as more than half of the wound healed without infection. Of the 62 wounds involving only skin and subcutaneous tissues, 54, or 87.1 per cent, were successful, and 1, or 1.6 per cent, were failures. Of the 157 wounds involving in addition the soft parts, 134, or 85.4 per cent, were successful and 6, or 3.8 per cent, were failures. Of the 51 wounds involving in addition a fracture, 39, or 76.5 per cent, were successful and 3, or 5.9 per cent, were failures.

On the other hand, of the ten failures three involved bone, six soft parts and one skin, there being one failure to every 62 wounds of the skin, to every 26 wounds of soft parts, and to every 17 wounds of bone.

Of the 112 cases treated by excision and suture 98, 87.5 per cent, were successful; 4, 3.6 per cent, were failures. Of 124 cases handled by delayed primary suture 106, 85.5 per cent, were successful; 3, 2.4 per cent, were failures. Secondary suture was used in 34 cases of which 24, 70.6 per cent, were successful, and 3, 8.8 per cent, were failures.

From this it can be seen that the sooner the closure operation the more successful the result.

The last 135 cases were cultured on the operating table; 34, 25 per cent, were negative and 101, 75 per cent, were positive.

Wounds clinically but not bacteriologically clean did well after suture. Had Carrel's dictum been strictly followed, less than 50 per cent of these cases would have been suturable. This is a lesson that can be applied to industrial surgery.

Most of these wounds were excised under novocain, occasionally supplemented by nitrous oxid plus oxygen, and so could be readily done in a works dispensary.

The time interval between wound and suture in an industrial plant should be almost negligible. If good results are obtainable when thirty hours have elapsed, they should be better when the interval is cut down, *i.e.*, when care is given during the first ten hours, or the period of contamination. After this time, we get the period of infection proper.

All wounds, whether they occur in war or in industry, are potentially infected at the time of the trauma. In war the infecting agency is the missile, clothing, and the dirt on the clothing. In industry, it is the accumulated grease and dirt in or with which the man is working.

Iodin has been used abundantly both at the front and in industry. Its efficacy as an antiseptic hinges on its intelligent use. It cannot sterilize dead tissue, but it kills the bacteria on the surface. After the removal of the dead tissue it is more useful.

First aid packets as a factor in decreasing virulence of infection act mainly by excluding subsequent infection, rather than by any specific action on the infecting agency at the time employed.

Dichloramin-T did best on flat surfaces, for example on amputation stumps. However, methyl alcohol dehydrated and clinically sterilized a wound quicker than any other antiseptic dealt with. Infected wounds cleared up most rapidly under hot soaks, or hot dressings, changed repeatedly.

INDICES FOR OR AGAINST IMMEDIATE OR DELAYED SUTURE

Immediate Suture	*Delayed Suture.*
1. Short elapsed time.	1. Long elapsed time.
2. Incised wounds.	2. Crushed wounds.
3. Good vascularity.	3. Bone damage.
	4. Slight inflammatory rex.
	5. Shock.

Treatment of Chest Wounds

The present war has shown that operative interference with the thoracic cavity is much simpler than previously supposed. No longer does one need the positive and negative pressure cabinets. Collapse of one lung is not as dangerous as has been taught. When chest wounds are met with they are handled in much the same way as we treat other wounds, meaning by this, proper incision and adequate drainage are instituted where indicated. The pleural cavity possesses a resistance to infection in much the same manner as does the peritoneal cavity. Sucking chest wounds should be closed immediately, either by suture, or tight pad until the patient can be sent to a hospital.

Conclusions

(1) Where death, molecular or mass, is present, infection is present also, and healing cannot occur until the dead tissue has been removed and well vascularized surfaces approximated without tension or dead space.

(2) The great problem of all wounds is infection.

(3) No antiseptic will sterilize so surely as the knife will cure.

(4) The time element is all important. Operate early and thoroughly to get the best results.

(5) Closure of a wound is preferably done by clinical judgment alone.

(6) Given a clean-cut operation, no antiseptic is necessary.

(7) Use of local anesthesia is applicable to industry. Novocain is the anesthesia of preference.

(8) Immediate surgery is the best preventive of shock.

(9) Proper splinting of fractures and traction can be done in a works dispensary.

(10) Early functioning of joints whether in joint injury or fracture should be started immediately; this should be active rather than passive.

(11) The fear of operative interference in chest injuries has been largely dispelled.

If you want to be miserable, think about yourself, about what you want, what you like, what respect people ought to pay you, and what people think of you.—Charles Kingsley.

THE PHYSICIAN AND SURGEON IN THE INDUSTRIAL CRISIS

OTTO P. GEIER, M.D., CINCINNATI, OHIO*

In an ever-broadening field, medical and surgical service in industry conserves the body and mind of the worker, humanizes his place of work and changes his attitude toward his job and the plant.

The next advance toward industrial peace must be the recognition that team play,—cooperation,—between employer and employee will serve the interests of both.

The service of the physician as an intermediary between employer and employee is to translate preventable accident or sickness into terms of economic loss to both, and to persuade them that the interests of both lie in mutualism, the sharing of both benefits and obligations.

IN the great chaos of world thought today, two outstanding problems present themselves for solution: First, how may international peace be brought about? Second, how may industrial or national peace be brought about? I hold that these two questions are inseparable. Permanent international peace will never exist until there be peace and unity among the people that go to make up each nation. The master minds of the world are at work on the first problem. The second problem, touching upon industrial peace, the success, health, unity, and contentment of the people of the nation, is the one that now concerns us. It is individual; it is directly and universally personal. No one of us can escape the responsibility of finding answer to the question that bears on the success, health, and peace that shall come to each individual, the sum total of which is finally forged into a national life. How this may be brought about; how these individuals may be drawn nearer to an established order of peace and harmony; how they may be influenced toward maximum production for their own and for the community welfare; how they may be brought to their best citizenship, actively in support of their own government; and, finally, how that government may come to be but the composite expression of the best desires and ambitions of men, is the special challenge that comes to the medical profession.

An Era of Conflict

It has been indelibly impressed on us these past few years that if the majority of the persons that make up a nation are badly dealt with; if they believe injustice prevails, if they feel that their living and working conditions are unfair, then a state of unrest and publicly expressed dissatisfaction results; production is interfered with; suffering and want ensue. Government then becomes unstable, and crime of every known variety becomes rampant. These things are destructive to citizenship—they are a blight on national life. Our subject, the physician and surgeon in the industrial era, is most timely. This is not only the industrial era, but also the era of greatest industrial strife. Public disorder and strife originate almost wholly in the clash of opinion between organized money and organized labor. Strikes and lock-outs with their attendant turmoil are but outward signs of a constant warfare that is going on between these groups. Thus we are uncomfortably reminded daily that ours is the industrial era; that the individualistic viewpoint no longer holds; that we must adjust our work and our thinking to large groups and great units of society; that we must think in terms of the mass rather than of the individual; that this is the day of group action; that this is the day for mass treatment.

The Peril of Stagnation

Recall, if you will, the national peril of business stagnation and starvation that England has just faced. Recall also the similar situation in our own country three years ago, when the railroad brotherhoods forced the Nation to its knees in the passage of the Adamson Law. Its recent arrogant progeny is the Plumb Bill. We have but just passed the crisis of the steel strike, only to be threatened by a coal famine with its almost limitless possibilities for nation-wide disaster. Here the ultimatum of organized labor is for a six-hour day, a five-day week, and 60 per cent increased pay. This is but another example of the vicious, ever widening circle of higher costs with lowered production,—yes, actual shortage of an industrial and domestic necessity.

* Read before the Clinical Congress of the American College of Surgeons, Ninth Annual Meeting, New York, October 20-24, 1919.

This type of demand by labor, coupled with successful propaganda by the I. W. W., the Bolsheviki, and the radical socialists, arrests the attention of all serious thinking men. Russia exemplified what happens to industry and production when rampant radicalism overwhelms a country. Industrial stagnation, insufficient production, hunger, mean a revolution. All men and groups of men of any moral or mental status or leadership, must definitely assign themselves to the task of stilling the present unrest. Selfish interest and self welfare demand it. The wave of temporary patriotism is over. Patient understanding and daily patriotism must prevail for the future years. No class is more challenged by these facts than is the outstanding group of physicians and surgeons.

The Psychic Wave and the Physician

What part is our profession playing in this post-war psychology, this industrial and social crisis? Are we making our contribution to the study of the problems of industry and labor? Have we adjusted the science of medicine to the needs of these two groups, or have we practised our profession with individuals just as was appropriate one hundred years ago? Have we not failed to develop a consciousness of group problems?

Bear with me in asking these personal questions. Is it not paradoxical that the physician, who to his patient appears as the most socially minded individual, should prove so unsocial and so inactive in his public thinking? Is it not strange that we who have the closest view of the intimate living and thinking of the people, should play so small a part in the disposition of their individual or group lives? Dare we any longer stand aloof and fail to make ourselves felt in the great social and economic changes that are taking place? Is it not equally strange that we should retain such a narrow perspective of the capacity of the profession to assist in these national problems? Health and sanity; these are basic factors in all social consideration. Are we doing all we can to bring them about? This would seem to be our especial function in society, and yet the most far reaching social measures which have to do with care and cure of disease and accident have been, and are being framed into legislation without taking the medical profession into account.

As an illustration, were our surgeons carefully consulted when Workmen's Compensation Acts, for the care of industrial accidents, were established? Are we satisfied with the application of this Law? Is it not a fact that, generally speaking, medical men, not qualified surgeons, are tinkering with the industrially injured? For the worker, this means prolongation of the case, greater loss of wage, unnecessary invalidity, with practically no scientific rehabilitation. For the employer, this means the idle machine, lowered production with higher cost; for society, it inevitably means definitely lowered standards of living and higher costs of living.

Physicians Should Claim Initiative

On the other hand, was the profession entitled to such consideration? Is it not a fact that for years we blindly went on repairing the hundreds of thousands annually injured and maimed, without public protest and without suggesting an improved program? It occurred to labor to seek compensation for time lost from accidents and payment by the state of the surgeons' fees. In the very nature of the case, labor could have no knowledge as to how to obtain the best surgical results for the injured, yet they dictated the law. Moreover, it remained for industry, not the medical profession, to set under way that wonderful "safety first" movement which has reduced death and accidents by approximately 50 per cent. Is the obligation not upon us now to propose the type of surgical organization under workmen's compensation acts, that will place all of the surgery rendered the injured workmen under the supervision of the best trained men in the profession, who, with a corps of assistants, and with the states divided into districts for such supervision, will see to it that justice is done both the injured worker and the profession?

Science in Sequestered Places

Are we not assuming the same negative attitude toward the movement for the better organized application of group curative medicine? Are not the physicians being practically ignored by the framers of compulsory sickness insurance, another group program? And yet we shall all admit that the future of the scientific teaching of medicine as well as its economic practice or application will be absolutely determined by the enactment of such a law. Unless the profession comes out of its social, or rather unsocial torpor, we may be sure that such legislation will be made to fit the whims of the perniciously active reformer, whether or not it pleases us or benefits labor or capital. Here again industry has been permitted unaided to visualize, ahead of the profession, the necessity of a constructive, preventive health program as an integral part of any intelligent legislation for health insurance. Does this recital of our social inactivities possibly suggest why we

have been so unsuccessful in our demands for a Federal department of health?

How can we understand and contribute to economic and social legislation unless we get a near view of the problems of labor and industry? Can we do this best merely by prolonging our scientific discussions in sequestered places or by also entering into the life and understanding of industry, learning there to apply our science intensively for the early recognition of disease and its prompt cure? It is here through supervision of the group that education of the adult for the prevention of disease and accident may be best applied. Energy applied to the group always means a maximum result with a minimum effort. On the other hand, can we hope to mould the attitude of organized labor toward health programs unless we offer a solution to the back breaking burden that preventable disease and suffering are causing the worker? Are we strong enough to overcome the objection of labor organizations to physical examination and prove that medical supervision of the worker is a national economic asset?

Better Basis of Thought

We must recognize that almost all old standards of thinking are in the discard. We are passing through a period of unstable thought. The pendulum has swung far and wide. The autocratic employer of yesterday is more than matched by the autocratic employee of today. The medical profession, along with a great mass of people, is in the arc of the swing, and must needs be on its guard.

If the world is to progress, the medical profession must render its best service and thereby prove indispensable to the main groups of society. Are we as a class perhaps the very latent force that if properly applied, will enable better relations between labor and capital, and establish a new confidence between these warring factions, a better understanding on the part of each of the difficulties and purposes of the other? We can help close the gap, to narrow the gulf, by humanizing industry. This approachment will come not by the fact that the physicians will act as mediators in any active struggle, but by daily furnishing human contacts on which better understanding and greater tolerance are created. In actual industrial practice the physician acts as the liaison force between employer and employee.

The Physician in Public Discussions

If such premise be sound, if any such hope of new human service exist, it behooves us as a profession to take inventory and better fit ourselves for this national reconstruction. We have still to demonstrate our worth. Our usefulness in public discussion of serious labor problems is not noteworthy.

Did it strike any of you as curious that the President failed to include a member of our profession in his national industrial conference at Washington, which began October 6?

Organized labor was given 17 representatives, four of whom were selected by the railroad brotherhoods; the United States Chamber of Commerce and the National Industrial Conference Board were each given 5 representatives; while the farmers' organization and the bankers' association are allowed 3 and 2 members, respectively. This would appear to indicate that the organized portions of society had their interests fairly well protected in this Conference. Can we say as much for the public, which all too frequently finds itself squeezed by the pressure which any two contending forces happen to exert on each other?

Science Must Serve the People

It is interesting, therefore, to note which of the fifty-seven varieties of statesmen appointed to the National Industrial Conference, are represented in the twenty-five individuals chosen to appear in behalf of the public. Unofficial record and "Who's Who in America" reveal the fact that the public was here represented by one broker; two bankers; two socialists,—one a writer and the other was once an aspirant for public office in New York; one president of a farm bureau federation; a cotton manufacturer; a clothing manufacturer; three directors of large corporations; one attorney for railroads; one paper bag manufacturer; one wagon manufacturer; one editor of a farm paper; one designated as a lawyer and politician; another known as "potato king"; one indicated as oil operator and lobbyist; one woman publicist; two women social workers; along with John D. Rockefeller, Jr., Elbert H. Gary, of the Steel Corporation, and Dr. Charles H. Eliot, president emeritus of Harvard College. Please note that the one hundred and fifty odd thousand of physicians in the country who have the obligation of caring for the nation's health were not represented in this Conference.

The one issue that is not controversial in this conference is that of decent living and working conditions. Within this issue are bound up problems of shop sanitation, the question of working conditions, prevention of occupational disease and accidents, and medical supervision with physical examination, to say nothing of the living conditions which involve housing and community health programs. These are factors in the in-

dustrial relations conference to which the physician with his scientific training and social viewpoint might have given invaluable suggestions; and yet we were, of all the professions, distinctly counted out. These are the things that make for the success, health, unity, and contentment of the people and are vital to national and international peace.

Waste in Delayed Service

If production is the keynote of a world reconstruction, and if health and sanity be so large a factor in production, would we not better move the physician out of his private office and into industry? Here he will soon become less an individualist. He need not be less scientific, but certainly he will be more usefully scientific as he touches elbows with those who rarely see or know the best that is in medicine or surgery. He will be applying to the great mass of workers, —the backbone of the nation,—that great storehouse of scientific knowledge and research which today is finding application in only a fractional part of the population.

It has become axiomatic that only the rich and the very poor get the best that we have to give as a profession. This fact becomes startling when viewed from the industrial clinic. The clinics of the hospitals or medical colleges meet only a fraction of the problem. The work there is with those who have fallen below the poverty line in whom it is too late to do preventive social work, and often too late to do preventive medical or surgical work. What a wondrous waste of energy! For only about 15 per cent of your clinical cases ever return for further observation. The clinic within industry prevents the unfortunate but good American workman from reaching the poverty line; it keeps him out of the charity class.

The Manifold Problems of Industry

Within the past decade there has developed, as a result of a strong demand on the part of industry, a new specialty to which hundreds of our profession are now devoting themselves. The industrial physician and surgeon are desperately attempting to cope with the manifold economic and social problems that are being brought to his attention. He is making himself familiar with the health problems of industrial institutions and those of the community. He is trying to make himself the master of the medical and surgical problems of industry, which are quite distinctive from those of the general practitioner and surgeon. He must have knowledge of the sanitary standards of plants, of occupational diseases, the subject of fatigue, the principles of safety work. He must know how to approach the subject of the medical supervision of the employees with special emphasis on physical examination, the proper placement of the employee, on dental hygiene, and nursing service. He must have a real interest in the broad question of personal relations in industry, must understand employment methods, with the proper recording of absence, lateness, illness and injury, labor turnover, and their bearing upon production. He must know the problem of the health of the employee in relation to the establishment funds, or mutual aid associations as well as the other factors of industrial health, such as recreation, food, cafeterias, rest periods, and so on.

The subject of lost time from work on account of illness, injury, and other causes is being continually related to the man's productivity and earning capacity, and in this way the physician's knowledge of medicine and surgery becomes a factor in economic life. It is the business of the industrial physician and surgeon to discover the existence of unhealthy working and factory conditions,—the matters of inadequate ventilation, lighting, drinking water, toilet and locker facilities.

These things, along with the occurrence of dust, fumes, gases, poisons, over-crowding, unnecessary noises, excessive variations in temperature and humidity, some of which produce an impaired vitality and low output, are his daily concern. The subject of fatigue, along with monotony, speed, and over-time, all become the problems of the industrial physician, to be weighed in as factors in efficiency and low earning capacity. Who can say how far fatigue brings on soreness of mind, and again how far soreness of mind predisposes to bodily fatigue? To what degree is that soreness of mind expressed in unrest?

The Physician a Social Engineer

When this type of work is well done, the physician becomes a social and medical engineer. He makes available to the mass of working men the best surgical and medical skill; he intensively educates the worker in the dollars and cents value of good health and personal hygiene; finally, and perhaps most important, he gives the employer the most accurate obtainable knowledge of the social, economic, and health conditions of the worker. He affords to the employing class interest in and a greater appreciation of the value of community health, thus making for the extension of public health control.

Out of this great human laboratory comes the conviction that the medical profession must

square itself with the conditions that obtain in this industrial era. This experience spells a need for group diagnostic clinics, where the average worker may pay a reasonable charge for the best diagnosis. The industrial clinic, acting as a diagnostic clearing station, is continually sending to the physician and surgeon on the outside cases requiring operative and medical procedure. Too frequently these patients are being charged out of proportion to their capacity to pay.

It may amaze you to know that the average worker receives his first complete physical examination in the industrial clinic. He is too often the victim of blind, gunshot prescriptions. The industrial clinic is teaching him to seek a better type of physician for himself and his family, and in that sense the industrial physician is tending to raise the standard of private practice on the outside.

In attempting to secure this better medical and surgical attention, the inadequacy of hospital and clinical facilities to care for the man who desires no charity, but who deserves the profession's best service at his price, becomes apparent. Whether the workman can receive his just dues in this regard without the intervention of some system of social insurance, remains for our profession, in conference with political and social economists, to determine.

Creates a Demand for Health

The industrial physician is doing much to mould opinion in behalf of preventive medicine. He is intensively educating the worker to care for his health. Our mortality rates can be further lowered only by such type of work, for the public seems to have reached a saturation point in regard to the educational appeals sent through the press by health departments. Industry can make use of the economic pressure to secure attendance to health matters.

The industrial physician recognizes not only the particular symptom of the patient in his clinic, but he visualizes through him the shop, the bench, the particular occupation that is affecting him; the dirt, the danger, the monotony, the home environment of the man before him. His preachments for healthful living are readily translated into the fact that each day of illness means a cramped budget at home; that prolonged absence on account of preventable accident is, through lowered production, adding to the cost of living.

It must be apparent that service of this type is more than mere medical or surgical service; that it is intensely conservative of the body and mind of the worker; that it humanizes his place of work; that it must change his attitude toward his job and officials in the plant; that it paves the way for clearer thinking and greater self-expression; that it substitutes a personality for the mere dull cog in the machine; that it calls out character both in the employer and the employee; that we thus secure an improved mass morality in both groups, and hasten the day of the true spirit of justice and good will in industry, the day of a real democracy between men.

These are some of the problems that the physician and surgeon of the industrial era must meet. These are questions which particularly challenge the attention of medical associations which have within their membership men with vision, who see things in a big way, who have shown an ability to do, who have developed a capacity for leadership.

Organizations are at hand to carry out any plan to reach any goal they may set for themselves. It is for them to evaluate this new specialty, to institute appropriate courses in medical colleges, to further its wider extension in industry. It is to be remembered that unless the task outlined for the industrial physician is accepted, there is no one else who can undertake the task and meet the situation.

The Dividing of the Way

It is for the medical profession at large to determine what place it will hold: whether in the swift current of thought, or in the quiet eddies; whether to stay on the edge of life, or close up to the great melting pot of human experience; whether to remain as spectators, or join in the struggle of progress; whether to rest in billet, or press on to the firing line, where men are fighting for life's goal.

The responsibility of leading the profession at large can well be left with this Association. I refuse to believe that you will not use your tremendous influence in this industrial crisis to set the people thinking sanely; that you will not assist in placing the medical profession back among the people,—the doers and the hewers; to reproduce the original place of the physician in society, that of priest, confessor, teacher, and healer; that you will not help place our medical, surgical, and philosophical service right out among the people; place it at the ignition point of life, where it can be consumed and help fashion into thought and being a national life commensurate with the standards of those who set up our great republic. The obligation is yours; the service asked, ennobling; the opportunity for enlarging life, immeasurable.

EYE INJURIES

By FRANK C. TREBILCOCK, M.D., Toronto, Canada*

EVERY man enjoys the opportunity of speaking to others upon his hobby, and I am no exception to the rule. I take it as an honor that I am allowed that privilege to-night, and herein desire to express to you my appreciation. Quite justly you have linked with that honor the responsibility of doing what has proved a rather difficult task, namely, of making a complicated and technical subject so simple and ordinary that I hope those of you, expert along other technical lines, may enjoy the paper, while my own *confrères* in the work may not weary.

Certainly phases of this wide subject were dealth with in a masterly manner at a previous convention by the president, Mr. George A. Kingston, but I hope to open others, so that, while perhaps reviewing some things of which he spoke, and adding others, your interest will be kept alive in this difficult group of cases.

Typical Cases Explained

I do not intend to enter into an abstruse discussion of any subdivision of this great subject, but to draw for you a picture or two of discrete cases, with explanatory remarks as we progress.

This claimant is a man of 54 years; comes from the country; he was injured by a flying spicule of slag, which pierced his right eyeball. He is accompanied by his wife, who generally answers for him, and volunteers the information that she came with him because he is unaccustomed to the city and might get lost. He holds his head down and cringes under the light; the attempt to get him into position for examination near a tungsten lamp causes most marked screwing up of the eyelids (blepharospasm). While writing some preliminary notes, we notice, by taking hidden glances at him, that the eyes are open and the spasm gone. The general behavior of the man, the volunteered and obvious support of the wife, suggest an exaggerated attempt to impress us with the serious results of the accident; perhaps he is badly injured; perhaps simply neurotic; perhaps malingering. Let us see.

The right eyeball has been injured; there is a scar in the scleral coat, extending downward from the corneal margin in a vertical direction for about three-sixteenths of an inch. It is dark colored and marks a perforation of the globe by a sharp foreign body,—in this case a piece of slag (glass). Above the wound area there is a small diffuse, grayish scarring, but it is limited in area, and does not extend into the center of the cornea, so that the part over the pupil is preserved in its perfect transparency.

The wound area does not bulge, is soundly healed, and there is no evidence of corneal or conjunctival irritation. So far as the outer wall of this eye is concerned excellent recovery has followed the wounding.

Let us return now to his lid spasm in the presence of light and the hanging of the head. Now, photophobia or horror of light is nearly always dependent upon superficial lesions; remember how the children suffered when their eyes were sore in measles; or try to forget your own distress when you had that cinder in your eye; and these are manifestly surface irritations. So that, with the mucous membrane of this eye so free from evidence of irritation, the healed wound, and the clear cornea, the man ought not to have photophobia and blepharospasm.

The Signs of Abnormality

But below this surface structure there is sign of abnormality. The pupil is not round, as it should be, but is elongated vertically until its lower edge is lost behind the corneal rim. This gives us the so-called keyhole pupil; the absence of the segment of the iris is named coloboma. Such shaped pupils are occasionally seen in congenital abnormalities, but we are justified in considering this one as a sequel to the accident.

There has been perforation of the external coat of the eyeball; a spicule of slag has made a vertical stab into the rim of the anterior chamber of the globe and, on its withdrawal, the squeeze of the muscles which move the eyeball in the socket has tended to empty the contents through this small opening. Some water first escaped; then, luckily, the iris below the pupil was forced into or against the inner aspect of the wound, and all leakage ceased. Healing took place without infection, but the slight inflammatory bands or adhesions held this part of the iris in its new position, and when final repair is complete it can not return to its normal place; the coloboma is permanent. The only point of danger is that this bit of iris may be forced into or through the wound as my handkerchief lies between my fingers, and

*Read before the Sixth Annual Meeting of the International Association of Industrial Accident Boards and Commissions, Toronto, September 23-26, 1919.

so interfere with the coaptation of the wound edges and prevent satisfactory healing.

In the case under discussion either that complication did not take place or the offending part was successfully removed by the attending surgeon, for here we have a perfect scar.

Looking now at this keyhole pupil under varying intensities of light we see that the free edge moves from center to periphery, and *vice versa*, except in that segment where it is glued to the undersurface of the wound area. This pupil is moveable, as it should be, except where mechanically tied and, as the color of the iris is exactly like the other one, we decide that there is no permanent damage done here for, unless complicated, we do not consider the coloboma a very serious matter.

A glance into the keyhole pupil shows it black as the other one, so that if there be no deeper injury, little harm has been done.

The examination of the deeper parts of this eyeball is now made in the dark room by reflected light. This is not easy to demonstrate to the unpractised man, so that you will have to accept our word for it that there is no lesion to be made out; that is to say, the crystalline lens is in its proper place immediately behind the iris and supporting it, and is perfectly transparent. Had it been scratched or pierced by the spicule of slag, it is probable that it would show a definite cloudiness, certainly at the point of injury, and likely throughout its entire substance; that is, we would have a cataract following the puncture,—the typical traumatic cataract.

In the case before us, either the glass needle did not penetrate deeply enough to touch the lens or it entered so far from the corneal margin as to be external to the rim of the lens, whose position is roughly indicated by the circumference of the cornea.

Searching carefully the posterior segment of the globe, that part behind the crystalline lens, we can find no sign of any lesion. All the structures therein contained, so sensitive to injury, so important in the process of proper and exact optic nerve stimulation, are normal in appearance.

We should now know this eyeball from the physical standpoint thoroughly; we have noted the cosmetic blemish, the abnormal pupil, but are sure that in the direct pathway of the light rays from the object reflecting them to the retina of the eye there is no obstruction visible to our normal sight. We must conclude that so far as this eyeball is concerned the claimant ought to see, and to see almost perfectly.

I have purposely explained the eye condition to you in detail before letting you know his complaint; it is that he can not see anything with his injured eye, and that his good one is getting weaker. He is emphatic that he can not count my fingers at one foot with his right eye. The vision of his left eye, the uninjured one, is admitted to be 6/24ths, but is improved to normal, 6/6ths, with a spherical lens of one unit.

The very exaggerated contortions when he first came near the light, the normal pathway for the light rays, with denial of sight, and the indefinable atmosphere about the man have aroused our suspicions of fraud from the beginning. It remains to prove the fraud and to make it clear to the man himself.

A Test of Vision

He sits opposite the ordinary testing card; with both eyes open he is told to read, and he reads easily lines one, two, and three. Into a pair of spectacle frames which he wears we put two convex lenses, so strong as to blur these lines and make them unreadable. He says he can not read the top letter now. Next, in front of these lenses we place other two, but not mates,—in front of the injured eye a concave one of the same units as the convex one already there,—so that this convex one is now neutralized, and for examination purposes he now wears over the injured eye what is equal to glass, or to no glass at all. Over the good eye we place another convex glass, so that the strength of the lens already there is added to and the blur increased for this eye,—the blur which he admitted a moment ago. These additions must be made quickly and simultaneously, and he must not be allowed to close either eye. You will understand that whatever he can read now he will see with the injured eye, although he will suppose that he is still using both together.

He is now asked to read; is asked without delay, for he must not have time to think; and our conduct and conversation must not suggest that we are trying to put him in a corner. Without a falter he reads the third line from the top of the card just as he did before, and it is obvious to us that he reads it with the eye which a few minutes ago he declared was so blind that he could not see his hand before his face. By covering this eye and giving him a new card, he will have to admit that his good eye can not read the top letter, and that he really was reading with the injured eye.

There is therefore no disability, for the right eye sees as well as the left one. This one fact is the end of our interest in the case.

Of course there are confirmatory tests which may be used, but in this case none was necessary,

and I will not weary you with details of them.

Before leaving this type of accident let me cite another case of almost identical wounding, with results more happy from the cosmetic standpoint, more unfortunate from the economic one. This man had the same sort of injury,—a stab by a bit of slag, sharp as a knife needle. The position of the external wound was just inside the corneal margin, instead of outside, and the penetration deep enough to puncture the iris, making a permanent eccentric pupil and piercing the lens. At first I was anxious lest a small particle might be still in the globe, but as the x-ray will not show glass, there was no way of making sure on this point. In an hour after the puncture took place there were such changes in the lens transparency that one could not distinctly see the details of the vitreous chamber; the traumatic cataract was already developing. The sight of this eye is permanently very defective.

These two cases taken together illustrate many points frequently seen in punctured wounding of the eyeball, which remains free from infection: the scleral pigmented wound, the coloboma of the iris, the perforation of the iris without iritis, the permanent eccentric pupil, the traumatic cataract following the prick of the lens. I am glad to say that the attempt at fraud is rare.

Traumatic Cataract

The brief review of this second case leads us naturally to a discussion of the subject of traumatic cataract. In the paper read before you two years ago by the President your attention was drawn to those lens changes of obscure origin which occasionally follow high-tension electric charges. The type of which I speak now is much easier to explain. This ordinary variety follows a break in the integrity of the lens capsule, that skin-like bag which incloses the proper substance of the lens in the same way that the chamois-skin pouch inclosed the chase gold watches of our fathers. So long as this capsule is intact the crystalline lens is protected from the clouding influence of the contact with the water humor just in front of it; but if a rent takes place in the capsule so that this aqueous humor can get through, then perfect transparency is lessened and cataractous change begins. I suppose that we would be justified in saying that the great majority of punctured eyeball wounds in the area covering the lens are followed by traumatic cataract, with defective vision, often complete loss.

From one standpoint this sequel to accident may be considered a fortunate one among the many which may occur, because the cataractous crystalline lens can be removed and, if there be no complications, either of the original wound or at the time of operation, satisfactory vision may be restored; however, in practice the problem is a difficult one. It is so easy to say to the patient, "Wait a while, until all signs of irritation are safely past; then we will extract the cataract, and it is a good gamble that a reasonable measure of sight may be regained."

Sequelae of Operations

We have instances where such a course was followed; traumatic cataracts were very successfully removed, and excellent sight regained in the injured eyes; but persistent double vision worried the men when both eyes were used together, and the surgeons would be as delighted to return to the men their cataracts as the men would be to get them. This is, happily, a rare sequel to operation, but must be always kept in mind and fully explained to the patient when he asks for operation. I shall not worry you with the elaborate explanation of this complication, but remember that a lens of approximately three-inch focus has been removed from the eyeball and, if anything like normal vision is to be achieved, a lens of equal strength or near it must be worn in a spectacle frame in front of the eye. This new arrangement works very well, indeed, in the vast majority of cases where the eyes can not be used together, as when the other one is defective; and it works well in many cases where the uninjured one is normal; but occasionally it will not work at all. It seems to me that when one eye is performing its function normally and the operated one has to be so artificially assisted, the miracle is that any of them work well.

I know that one seldom hears complaints after these operations for traumatic cataracts, but we must not forget that there are a very large number of these patients who, having deeper injuries, do not get good enough vision to cause the annoyance; and then there are exigencies at some operations which mar the outcome. I do not suggest that traumatic cataracts should not be removed when the vision of the uninjured eye is normal; I only maintain that it is a difficult problem to decide what will be best for the patient, especially when he does his work without much inconvenience, and the only indication for operation is either the cosmetic one or the widening of his visual field. I think that all the possibilities should be discussed with intelligent patients until we see that they fully understand, and that then they should be given the right and the duty of choice; and that in cases when the injured ones are unintelligent or illiterate it is better to leave well enough alone.

OCULAR WORK OF THE HOOD RUBBER COMPANY

HARRY A. WATTS, M.D., Assistant Ophthalmic Surgeon, Massachusetts Homeopathic Hospital; Oculist, Hood Rubber Company, Watertown, Mass.

EARLY in 1918 the large percentage of ocular defects occurring among applicants and employees made obvious the need of ocular service in connection with the health department of the Hood Rubber Company.

Upon examining, for example, fifty-five inspectors, it was found that eleven, or 20 per cent, could not see the work they were paid to to inspect. The development of this branch of service has been so important to this company that it seems worth while to call it to the attention of other industrial establishments as well as to oculists.

One of the most difficult problems at the outset was the best way of handling the mechanical and optical side of the service. The question of installing a complete grinding equipment and employing an optician was carefully considered but rejected, chiefly because of the additional cost. Instead, arrangements were made with a Boston manufacturing concern that sends to the factory a competent man who takes the prescriptions and measurements for the mountings, delivers the glasses, and makes adjustments. This firm gives the Hood Company a discount on all glasses so that they can be sold to the employees at a considerable reduction under prevailing prices. Collections are made by the Hood Company either in cash or by deductions from the pay envelope, sometimes in several installments.

The following table will show the highly cosmopolitan character of the employees and give some idea of the kind of people with whom we have to deal and the problems to be met:

On April first the 8,338 employes of the company were tabulated as to nationality as follows:

American	340	French	126
Italian	254	Swede	70
Irish	226	Scotch	58
Canadian	171	Hebrew	18
Armenian	161	Norwegian	17
Lithuanian	159	German	11
Greek	3,995	Turks	9
Polish	1,233	Danish	8
English	551	Austrian	7
Portugese	459	All others	40
Russian	425		

The age distribution was listed as follows:

14—15	126	41—44	484
16—17	481	45—48	385
18—20	957	49—52	263
21—24	1,594	53—56	200
25—28	1,226	57—60	117
29—32	945	61—64	56
33—36	824	65—68	41
37—40	624	69—72	15
Total	8,338		

Treatment Optional With Employees

The new eye service was advertised in the factory by posters and notices in the *Arrow*, the company magazine. Defectives discovered at the time of physical examination are referred to the clinic for treatment. It is purely optional on the part of the employees and does not include any members of their families. We started giving three mornings a week to the service, but the response to the privilege was so prompt that we began in July to devote every forenoon to the work and have continued on that basis since.

We started to follow the system used in the ophthalmic out-patient departments of the various Boston hospitals,—with patients thirty-five years or younger, to take and record the vision at the first visit and give a bottle of homatropin, with directions for use, and orders to report on another day with the eyes under its effects. With this system we soon found we had a long list of employees who had a bottle of our homatropin at seventy-nine cents per grain, and a dropper, who never came back. We found it necessary to avoid the use of drops whenever possible and it is used now only when it seems absolutely essential for a positive and reliable diagnosis.

Nature of Complaints

These patients come complaining of some type of asthenopia, and the relief of this or the improvement of their vision is all they wish; if this can be done without the use of drops every one concerned gains thereby. It does not seem possible to dispense with the use of a mydriatic entirely and maintain a high standard of work. In a few cases the ciliary muscle is so active that hyperopes make apparent myopes of themselves and refuse everything except minus lenses, which it would be grave error to give. Without the use of drops it requires unceasing vigilance to avoid this error; even then, it is apt to occur occasionally.

One extreme example of this type was that of a young woman thirty-five years of age who suffered from very severe headaches. With ordinary methods of refraction she absolutely refused every lens except a minus .75 and that with a result so unsatisfactory as to be clearly unreliable. With homatropin she accepted plus 1.50 sph. O. U. with a plus 50 cyl. which gave her immediate

relief. This case is an example of a type in which a mydriatic seems indispensable.

As a substitute for homatropin fogging systems have very warm advocates chiefly among those who, because of a total lack of any medical training, are forbidden by law to use drugs. We use it in cases of doubt and for purposes of confirmation, but in this work as well as in private practice it appears that cases that may be refracted easily by ordinary means may be very successfully fogged; while obscure cases, like the one just cited, can not be fogged with any reliability of results, so in the final analysis fogging is of very limited value. All fogging systems produce an artificial myopia and are based upon the theory that a myope can not accommodate. This theory is a fallacy, for myopes can and do accommodate, as is proved by the fact that under a cycloplegic, when accommodation is paralyzed, a myope almost always has better vision, showing that the eyes have been attempting to focus and in so doing have increased the myopia. With other well known facts as well as these in view it does not seem feasible to attempt the substitution of any fogging system for a mydriatic.

Cold statistical figures do not show the actual benefits of a service that makes so much for greater physical comfort and contentment, and increases capacity for a better output of work which in turn reacts in a better pay envelope.

Number and Nature of Corrections

Without a volume of uninteresting figures it is difficult to state in exact terms the actual results of this first year's work and, even then, the conclusions must have marked limitations. In a little more than one fiscal year we refracted over 1,100, not including a few cases of disease, accident, and foreign bodies. The cases have been tabulated to give a general idea of the scope of the work with its results, observing the rule, where the eyes are unlike, of basing the record on the better eye. This amounts practically to the same as binocular vision. (Table I.)

The table does not include the considerable number with only one defective eye. The results would probably be about the same as above with an occasional amblyopic eye beyond help because of early neglect and disuse.

In this series it has been astonishing to note the proportion who had no conception of their visual limitations and supposed they were seeing just as well as other people; but it was even more so to find a few who, after the defect was shown and the improvement offered with a pair of glasses, declined all aid, apparently happy in being nearly blind.

Probably the majority of our patients came from those who had vision of 20/20 or even 20/15, but suffered from asthenopia of one kind or another. These, mostly young people, were uncomfortable and, although they did not actually see any clearer with glasses, they were advised without hesitation and worn with great relief and comfort. Had they been occupied with outdoor work they would have had no trouble.

Some of this class revealed marked defects upon examination and it has not been uncommon to find a patient seeing 20/15 O. U. with fair com-

Quarters for the optical department of the Hood Rubber Company have been provided at the plant. The service was immediately in demand and has been extended

fort requiring plus 2 for perfect ease, and several such patients have needed and worn with great advantage as high as plus 6.

The refractive defects here are divided about the same as usually prevail, but at times there has seemed to be a marked over-proportion of mixed astigmatism, usually with off axes. On some days there has seemed to be hardly anything else. These require great care and patience and the

TABLE I.—Ocular Service in 1918-19 of Hood Rubber Company.

Patients	Vision	Corrected Vision
4	20/200 or less*	20/100
9	20/200 or less	20/60
5	20/200 or less	20/40
13	20/200 or less	20/30
20	20/200 or less	20/20
16	20/200 or less	20/15
8	20/100	20/60
5	20/100	20/40
15	20/100	20/30
28	20/100	20/20
19	20/100	20/15
25	20/60	20/20 or over
48	20/40	20/20 or over
88	20/30	20/20 or over

*Some as low as 2/200

retinscope has proved indispensable. The results are highly satisfactory.

Presbyopias have been common and easily handled but there has often been trouble in persuading these patients to wear a correction for distance, even when badly needed. When a distance glass is refused, such a patient will often return quite indignant, with the complaint that when he looks off at a distance everything is blurred and this in spite of the fact that it has been very carefully explained that he must not try to use them for distance as they are for near work only.

Ultimate Results of Service

Of course we have occasional complaints; it would be impossible otherwise, but we feel that, with our heterogenous clientele considered, complaints have been remarkably few. They have come almost entirely from the two extremes of intelligence and we are inclined to think that of the two we have had the more trouble with the higher clerical force.

As another way of finding the ultimate results of this service questions have been sent to some of the foremen asking for reports upon these patients as to their relief from their troubles, their satisfaction, their improved vision, and their increased efficiency in the quantity and quality of their work. The replies received so far have been very satisfactory but not of sufficient number to make them the basis of any statistical deductions Later this method may be extended.

The inability of a worker to make good or average wages may be dependent upon some physical defect, often poor vision, and if this can be corrected it makes for greater efficiency and personal contentment.

The difficulties of showing the actual results of a service of this kind in cold statistical figures are easily appreciated; but in the protection of the employee from greedy commercialism, the greater physical comfort and contentment, the increased capacity for a larger and better output with the opportunity of a fuller pay envelope, this service must have been of far reaching importance and value in the life of every patient, and has contributed to the general prosperity of the concern.

DENTISTRY A PHASE OF MEDICAL SERVICE

By C. B. BRAY, D.D.S., the American Cast Iron Pipe Company, Birmingham, Ala.

IT may well be a moot question, whether or not the Fountain of Youth ever will be discovered, but undoubtedly the searchers for this dream of the ages did a good day's work when they applied dentistry to industry.

The science of dentistry for many years had been considered more or less of a foible of the rich. The man or woman who could go to a dentist was somebody. It was perhaps, in many instances, quite a mark of social distinction to have a gold tooth stuck in front of the mouth; but for the average family, busy with the everyday cares of life, dentistry was not even thought of. Perhaps their nearest approach to it, was when one of the "kids" got the toothache and even then, except in very extreme cases, only hot applications were applied, or a little clove oil injected into the decayed tooth. The dentist and his art, was as foreign to the average man or woman as the wild animals they saw once a year when the circus came through. They simply knew there was "such a thing."

Health Value of Dentistry

Not so now, and the whole change has taken place in the past five to ten years. What is the reason? Simply a discovery of the true value of dentistry as a preventive and a cure for human ills. Men responsible for the operation of industry some time ago realized that the physical condition of the workmen in their shops had much to do with their efficiency. Then one thing led to another until the fact came home to them that a workman's physical condition depended greatly upon the condition of his teeth. The natural thing to do, therefore, was to install an expert dentist in the plant where the workmen with bad teeth would have every inducement to have their injurious mouth conditions corrected. This effected the change referred to; the working-man and his family have not gone to the dentist, but the dentist has been brought to them.

The dental department of the medical service of the American Cast Iron Pipe Company, Birmingham, Ala., was inaugurated four years ago, some time after the Employees' Cooperative Medical Department was instituted. The addition of the dental department was for the same reason as the medical department itself had been formed. The company management had realized that physical fitness determined to an enormous extent the efficiency of a workman, and the medical department was to give each man and his family expert medical care

and treatment at the minimum of expense. After several years' operation, however, it was discovered something was still lacking and further investigation showed that what was needed was a dentist.

Extent of Medical Service

The services of this medical department, which now includes two physicians and a surgeon, trained nurses, operating rooms, consultation rooms, a consulting staff of specialists, two dental operating rooms, and a dentist, are furnished to married men and their families for a standard fee of one dollar per month and to single men for fifty cents a month. The dental department, especially, is popular with the families of married employees, the mother and children in many cases being eager to take advantage of its opportunities. This care of the workman's family has been found very much worth while, because the next thing to health, in promoting a workman's efficiency, is happiness; and no man can be happy if he has an ill wife or children, or is in debt for doctor's fees on their account.

But it is with the workman himself where the really big thing is accomplished by the industrial dentist. He has come to seem almost like the mythical healer of ancient days. His operations are confined to the teeth, but he secures astounding results in almost any part of the anatomy. Men come to him with a chronic case of rheumatism. He pulls a tooth. Presto! The rheumatism, which may have been in the man's ankle at the other end of his anatomy, is gone! From a makeshift, inefficient, dissatisfied, grumbling workman, the patient has been transformed into a healthy, efficient workman who goes about his duties with a song. All by the pulling of a tooth.

But this is only one case. There are hundreds. Men come with indigestion,—bad teeth. Men come with neuralgic pains; in fact, with everything down to and including an ingrown and souring disposition, and the dentist fixes them up by treating their teeth. Is it any wonder dentistry is being hailed with loud acclaim in industry?

Dental Work Free

The plan we follow in this work is simply this: The company employs a man for full time. He goes on duty at eight a. m. and stays until five p. m. Everything is done for the working-men in the way of dentistry. Alloy fillings, cement, extractions, cleaning, etc., are all free. Gold fillings, plate and bridge work, are charged, or rather, a fee is charged to about cover the cost of material. They have the privilege of having this done on company time. The families enjoy the same privilege. This fee is deducted in small payments as the men wish, each week, until the amount is paid. The company feels that the Dental Department is one of the main legs of the medical department; it saves the time lost in going to a dentist in the city which works a hardship both on the company and the men. The company loses the time while off duty, and the men lose both time and wages they would have earned. The industrial dentist has not hurt the man in private practice, but has helped him; for he has been able to educate the class of people that would never have been patients of any man had it not been for the industrial dentist.

I believe the time will surely come when every industrial plant with a medical department will be forced to include a dental department as well. Until they do so, they will certainly not be able to get maximum results from their medical department.

MEDICAL SCHOOL TO BE MEMORIAL

A greater Chicago School of Medicine as a memorial to the city's soldiers and war workers is to be established with the Hahnemann Medical College as the nucleus. Dr. Daniel Russell Hodgdon will be the head of the new institution, and each separate unit will be named for a promient builder of the city. Instruction along the lines of clinical experiment will be provided, and the practical side of education will be emphasized in order to bring the students into closer touch with the world's activities.

OBSERVANCE OF CHILD LABOR DAY

A nation-wide observance of Child Labor Day by church and social organizations January 24, 25 and 26, is being urged by the National Child Labor Committee. Jane Addams in approval of the plan says that one day set aside for the needs of children and urging the furtherance of child welfare as a religious duty would be most valuable. Because certain states have secured satisfactory legislation for the protection of children, it is easy to assume that it is no longer necessary to push child labor reform forgetting the wretched conditions still obtaining in vast areas of the United States.

CORRECTION

Attention is called to the following correction in the prescription of the second ointment given in the "Treatment of Burns," by Dr. W. Irving Clark, Jr., on page 595 of the November issue of MODERN MEDICINE. It should have read as follows.

Vaselin	20.
Lanolin	20.
Antipyrin	.60
Boric Acid	.60
Salol	.20
Iodal or Iodoform	.20
Phenol	.20
$HgCl_2$	.02

INDUSTRIAL NURSING

There has been a definite expression of opinion recently among industrial nurses generally that there is need for uniform standards of service and for better preparation for their work. Employers are seeing similar needs. Industrial nursing is still a field for the pioneer nurse who often takes up her work without thought of preparation other than a hospital training. She finds immediate need for a broader knowledge, which is often fairly easy to obtain if the way is pointed out.

The industrial nurses of the National Organization for Public Health Nursing plan to form an Industrial Nursing Section in the National Organization at the meeting in Atlanta next April The object of this section will be the formulation and maintenance of high standards for service in industry. It is planned to make known to nurses throughout the country the opportunities for education for industrial nurses. Opportunities exist or may be developed in many large centers. Qualified nurses are eligible to membership in the National Organization for Public Health Nursing. Employers are eligible to corporate membership. Associations of employers and workers, or of employees, are eligible to corporate membership.

All industrial nurses are urged to attend the Atlanta meeting and employers of industrial nurses are urged to send a nurse as their representative.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

PROGRESS OF THE PUBLIC HEALTH MOVEMENT IN THE YEAR 1919

THE twelve months which have just passed have not been marked by striking developments in the acquisition of that scientific knowledge upon which the sure advance of public health must rest. The discovery by Theobald Smith of a new microbe causing contagious abortion in cattle, the work of Francis on deer-fly fever, the contributions of Bradford, Bashford, and Wilson to our knowledge of acute infective polyneuritis, and the very recent studies on lethargic encephalitis at the Rockefeller institute are of interest; but they relate to comparatively minor problems in the general field of public health. Nothing of primary importance has been developed in regard to the control of the common contact-borne infections; and, above all, the vast amount of study given to the problem of influenza has been almost wholly barren of results. We began the year with high hopes that the organized resources of modern science would clear up the obscurity which has shrouded this mysterious epidemic on its earlier appearances. We close the year more in the dark than ever.

In the field of food sanitation some real progress has been made. A number of small outbreaks of botulism have been reported, caused mainly by vegetables canned on the Pacific slope, where it would seem *B. botulinus* must occur in some abundance. With this exception, however, the work of Weinzirl on the bacteriology of canned goods and of Rosenau on the general bacteriology and epidemiology of food poisoning would apparently lead to the conclusion that the danger to health from foods is, in this country, comparatively slight.

Our knowledge of the hygiene of the diet has also made real advances during the past year. The studies of Osborne and Mendel on the importance of particular amino-acids in the diet has tended to strengthen the post-bellum reaction against a too restricted diet, and McCollum's work has emphasized more strongly than ever the necessity of supplementing foods derived from seeds and roots with those made up of leaves, containing a higher proportion of vitamines and more complete proteins. In view of the army experience with dehydration a great deal of attention has been devoted to the question of the effect of drying upon vitamine content; and it appears here, as in the pasteurization of milk, that the nature of the vitamine present, the composition of the medium in which it occurs, the influence of aging, and many other factors affect the results so materially that no generalizations can be made. It seems clear, however, that the drying of milk and of many other foods promises to play a great and a useful part in the solution of the food problems of the future.

When we turn from scientific research to practical application, the year 1919 appears to have been a more fruitful one. Particularly noteworthy has been the widespread interest in what may be termed experimental demonstrations of public health technic on a practical scale. General Gorgas and his associates have apparently conquered yellow fever in its innermost stronghold at Guayaquil; and the whole movement for malaria control, which must in the future be recognized as one of the most important public health problems of the nation, has been given impetus and direction through the demonstrations by the International Health Board of the efficiency of drainage, screening, and cinchonization in producing an 80 to 90 per cent reduction of malaria in selected communities of Arkansas and Mississippi.

The Framingham Tuberculosis Demonstration, which is a similar field test of the efficiency of modern methods of controlling tuberculosis by the detection and hygienic care of incipient cases, completes its first three years this winter, and,—the results, though inconclusive, being most prom-

ising,—is to be continued for a further period. The entire policy of the United States Army in dealing with venereal disease during the war was in reality another demonstration,—this time on a grand scale,—of a new public health technic, a demonstration whose success as described during the past few months offers promise of far reaching results even in such modified application as may be practicable in civilian life.

Finally, the Cincinnati Social Unit, the first reports in appraisal of which have recently been published, represents an extraordinarily interesting experiment in health administration and health propaganda as well as in social organization. The inauguration by the American Red Cross of a nation-wide campaign for the development of health centers is another example of current interest in the development of health conservation work along intensive local lines.

From the viewpoint of governmental health organization, by far the most important event of the year was the passage of legislation in Ohio which divided the state into 110 sanitary districts and required the appointment in each district of a full-time health officer and a public health nurse, the appointments to be made under civil service and to carry adequate salaries and a stable tenure of office.

The enactment of this law marks an epoch in health legislation and should place Ohio in the forefront of American commonwealths from a sanitary viewpoint.

To sum up, the year 1919 has witnessed notable advances in the application of the knowledge already at our disposal, particularly along the fruitful line of practical field demonstrations of the efficiency of the newer technic of public health. It has not been marked by equal progress in the asquisition of new knowledge; and the two great problems of pneumonia and of cancer still offer their compelling challenge to the investigator of the future. EDITOR.

STATE LABORATORY WORK IN NEW YORK

By AUGUSTUS B. WADSWORTH, M.D., Director of the Division of Laboratories and Research, Albany, N. Y.

THE Division of Laboratories and Research of the New York State Department of Health is at last housed in an appropriate, modern building, up-to-date in every particular. For those not familiar with the early history of the laboratory a few words in regard to it are of interest. In 1913 the Legislature of the state of New York passed the present Public Health Law, which established a public health council and authorized a sanitary code whose regulations have the force of law; and from that time to the present the laboratory has steadily grown in the extent and variety of its activities, and in the service which it has been able to render.

The Old Quarters

In 1914 the whole laboratory staff—scientific workers, assistants, and cleaners—consisted of only seventeen persons. The work of the laboratory was carried on in an old brick stable and an adjoining two-story frame house with numerous lean-to additions and sheds, untidy in appearance, both inside and out. The old tin roofs leaked copiously on the stormy day in February when the present director arrived to assume his new responsibilities and to take charge of the work.

Sixteen horses were housed in the small stable. The stable man bled them there, and, also officiating as physiological chemist, he carried the serum into an adjoining room and by obsolete methods of precipitation obtained, in some—but unfortunately relatively slight,—degree of concentration, the diphtheria and tetanus antitoxins. Cultures from cases of suspected diphtheria, specimens of blood and of sputum were examined for the diagnosis of diphtheria, typhoid fever, or tuberculosis. Samples of water, collected by one of the laborers on tours through the state, were also examined; but some of the technical procedures followed were not those of the most approved usage, and there was neither a reference book nor even a standard text-book of recent date to be found in the laboratory.

Although conditions were about as unsatisfactory and about as insanitary as they could be, irrespective of the new high standards of public health work which were to be developed in the Empire State with the powers conferred by the new Public Health Law, the prospect was not in any sense a gloomy one, because it was quite impossible to do anything that would not improve conditions.

It is scarcely necessary to describe in detail how month by month, the work of the laboratory was re-organized and developed until now the staff, including the workers at the branch laboratory in New York City and at the laboratory farm, eight miles out of Albany, numbers 208 workers. Before this new laboratory building was in read-

iness every nook and cranny of the old laboratory building, even the chicken coops in which the stableman had kept his chickens, were utilized to house the increasing staff, At one time in this building from 140 to 150 persons were carrying on the greatly increased work. The crowded conditions at last became so intolerable that it was necessary to rent the greater part of the Bender Laboratory near by.

Reorganization of the Health Department

This development of the laboratory was only part of the re-organization of the entire department of health under the new commissioner, Dr. Hermann H. Biggs, who was appointed in 1914 after the passage of the new Public Health Law. Doctor Biggs and the Public Health Council realized so fully the importance of laboratory service in public health work that it was possible to develop the work along lines of the greatest practical value, and the results obtained so justified the work that the hearty cooperation of the Legislature under two different administrations was secured.

The problem of constructing a laboratory building fully equipped for research work was one which required considerable study. Obviously such a laboratory should be equipped for practically all branches of chemical, bacteriological, and pathological work, not only from the point of view of academic research but for the practical purposes of manufacturing biological products as well. The interest of the state architect, Mr. Lewis F. Pilcher, of Mr. Thomas M. Newton, assistant architect, and of Mr. George B. Nichols, chief engineer, was enlisted in securing a simple, fireproof construction. Mr. Nichols with his assistant, Mr. Ralph C. Taggart, gave considerable time and thought to the details of installing the permanent equipment. The new research laboratories of important institutions were visited, among others, those of the Rockefeller Institute, the Massachusetts Institute of Technology, Harvard University, the bacteriological laboratories of Bellevue Hospital, New York City College, and some of the commercial laboratories.

Fig. 2. General view of the laboratory of the Division of Laboratories and Research, New York State Department of Health, Albany, N. Y. Plain in design, as suits its purposes, the front elevation is relieved by the projections at each end, and by the trimmings and wall courses of buff Indiana limestone.

The first plan was drawn up on the unit basis, but owing to the fact that the building, as planned, would exceed the appropriations, it was necessary to make certain modifications, which reduced the size of some of the research rooms and interferred to some extent with the original plan.

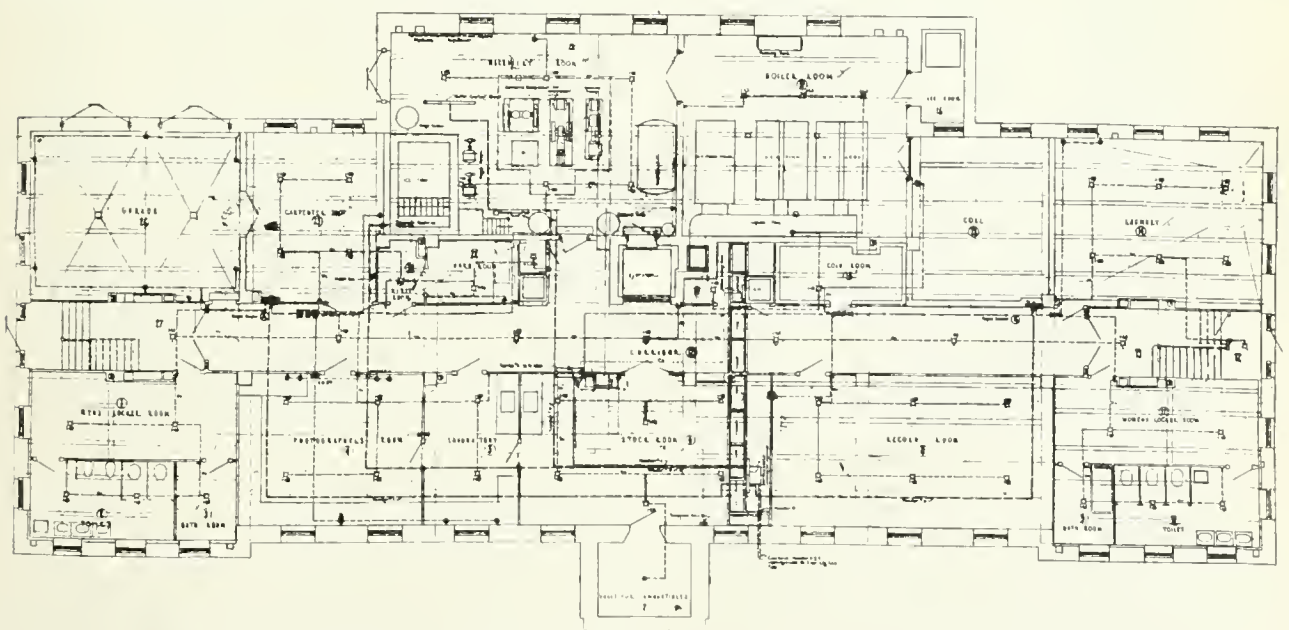


Fig. 1. The basement follows the same general floor plan of the upper stories. Here are located, conveniently grouped for service, the boiler room, machinery room, laundry, machine and carpenter shop, garage, coat room, etc.

The New Laboratory Building

As shown in Figure 2, the architecture of the rectangular red brick building is decidedly plain; but the brick pilasters, the slight projection of the façade at each end of the building, the proportions and the spacing of the windows, together with the trimmings of buff Indiana limestone, all give a suitable appearance to the façade of a laboratory which is to be used for scientific activities and for research.

The construction in general is of reinforced concrete, fireproof throughout. The outside dimensions are approximately 150x50 feet. The building consists of three stories and a basement and the interior arrangement, which is practically the same on all floors, is that of a central corridor extending the length of the building, with rooms ranged on either side.

Location of Units

In the basement (Fig. 1) are located the boiler room, machinery room, laundry, machine and carpenter shop, garage, coat rooms, etc.

On the first floor are the administration offices, the serum diagnostic laboratories, the media preparation, filtering, filling, and boxing rooms, together with cold rooms and storage rooms for special supplies.

On one side of the corridor the second floor space is mostly taken up by a large library, the Director's office and his private laboratory; on the other side are the laboratories for bacterial diagnosis, and for research.

On the third floor are located the chemical laboratories, laboratories for the work of the serums, antitoxin, and vaccine department; rooms for the differentiation of pneumococcus types; for the standardization of the antitoxins; ad-

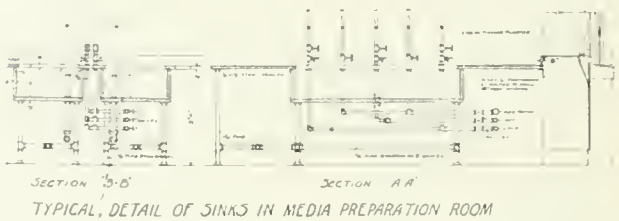


Fig. 4. Typtical installation of sinks. All work tables have five-inch porcelain sinks at convenient intervals.

ditional rooms for the preparation of therapeutic products; and for research. Necessary cold rooms, store rooms, and coat rooms, needed in the activities of various groups are located on all floors. Space also has been assigned for miscellaneous activities, such as a room for x-ray work, another for photography, a cage room for animals, special operating rooms, a rest room for women, and a luncheon room.

The Machinery Room

In the machinery room in the basement is the power plant for running the heating, ventilating,

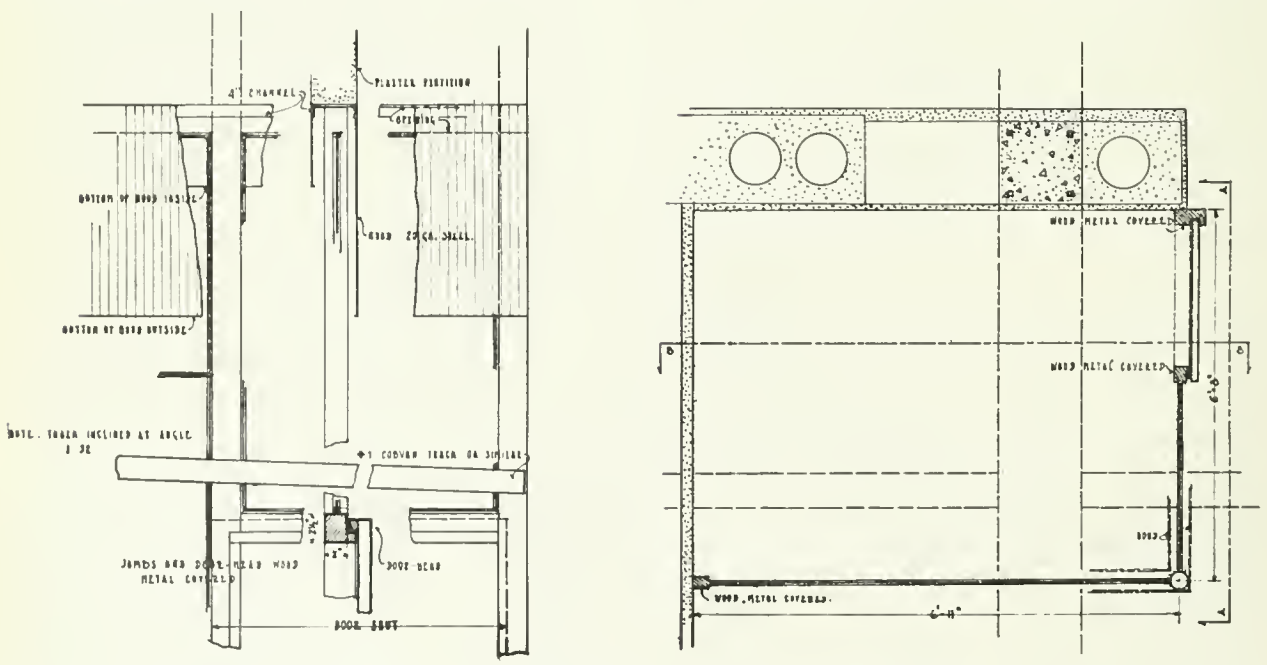


Fig. 3. Floor plan and detail of sterile room. The side walls extend only to within two and one-half inches of the ceiling, leaving an air space. Direct passage of air through this space is prevented by metal aprons.

compressed air, and cooling machinery. Heat is supplied by two low pressure steam boilers, the steam being distributed to radiators that are hung on brackets above the floor in panels below the window, so that every window has a radiator un-

der it. This arrangement prevents the cold drafts of air from the windows, and provides a current of heated air upward instead of a downward current of cold air. Ventilation is accomplished by exhaust fans driven by motors located at the top of the building. There are two separate systems, each ventilating one-half of the building. These can be operated individually and are cross connected in such a manner that either fan can be used to exhaust both systems, when desirable.

High pressure steam is furnished by a boiler carrying between 100 and 110 pounds pressure. Steam at 100 pounds pressure is delivered to the media room for use in the hot air sterilizers. Another line from the same boiler, after passing through a reducing valve, is conducted to the laundry at 60 pounds pressure. A third line, after passing through a reducing valve, is distributed under 20 pounds pressure to the steam baths and fume hoods in the media room, to the chemical laboratories, and also to the stills for distilling water and for alcohol recovery, and stills for research and experimental work.

The machinery room contains a reciprocating vacuum pump, driven by a belt-connected motor. The vacuum system is capable of maintaining 28 inches of vacuum. Pipes connected with this system are distributed to the fume hoods, sterile rooms, and to the bacteriological and chemical laboratories throughout the building.

A reciprocating air compressor, driven by a belt-connected motor, is also located in the machinery room, and air under 90 pounds pressure can be distributed to the sterile rooms, fume hoods, chemical laboratories, media room, filtration room, and other rooms in the building where air pressure is required.

The equipment for cooling consists of a six-ton ammonia compressor, with the necessary brine circulating pumps, tank, and coils. The brine tank is located in the machinery room and is supplied with the necessary cans and apparatus for manufacturing ice in moderate quantities. The cold rooms in different parts of the building are cooled by brine circulating from the cooling plant. The brine is also delivered through

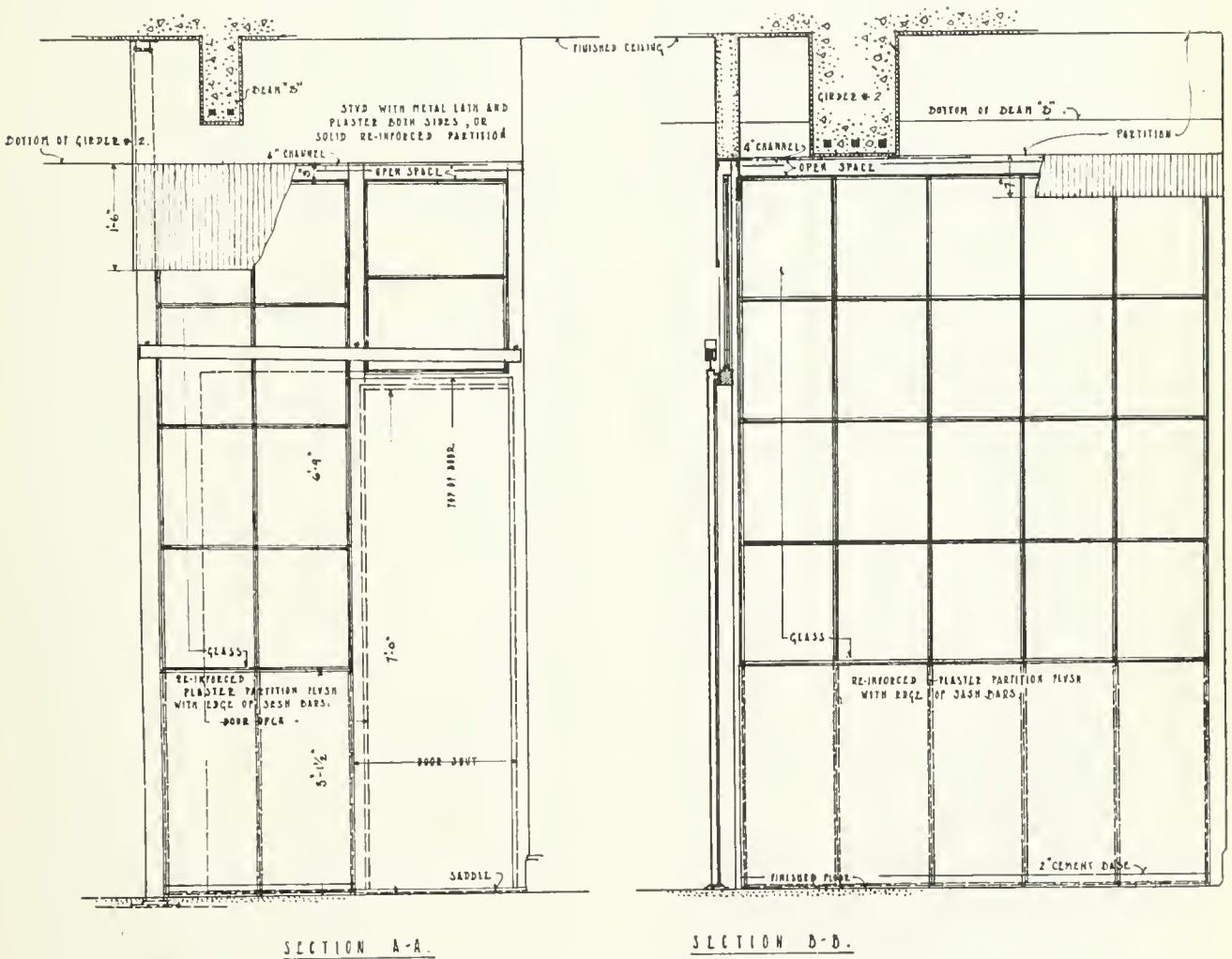


Fig. 5. The construction of the sterile room is unusual and interesting. Two sections are given, showing detail of construction. Ventilation is assured, and air contamination reduced to a minimum.

coils in a tank for cooling drinking water to an automatically controlled degree. On the top floor in the dialyzing room, under regulation, it lowers the temperature of the water in a tank to 35° F., and this tank, in a separate cold room, delivers the cold water to a dialyzing sink so that dialyzation can be conducted at low temperature.

Installation of Equipment

The city supply of water, gas, and electricity is utilized. Large mains and feed wires are installed in order to provide a sufficient supply for all purposes. A six-inch water and a three-inch gas main are provided. The electricity is supplied from the city current in large power and small power units. The electric current for the large power units is 220 volts, three phase, forty cycle. For the small power units and lighting the current distributed is 110 volts, single phase, forty cycle. Special power lines are delivered to the laundry and to the x-ray photograph room; otherwise, the laboratory rooms were wired to furnish in each room thirty amperes; each line is fused for twenty-five amperes, each room having a separate fuse-box. The electric conduits are concealed in the walls except where carried over the table tops to furnish outlets for plugging-in apparatus.

From the power plant the various mains are suspended from the ceiling of the hallway of the basement and by five groups of vertical risers located in chases which open into the hallways; they are thus exposed throughout their course. In the ceilings of the first and second stories supply pipes from these risers are distributed. The ceiling is lowered so that they are all concealed, but they are accessible at all times for repairs through manholes in the ceilings. The drains, of ordinary cast iron pipe, are all exposed under alberene benches which are placed on the outer walls of the workrooms, and lead to vertical waste pipes of vitrified tile set in concrete.

Above the benches the gas, electricity, hot and cold water, and vacuum pressure are distributed around the room. Fume hoods are located in all rooms used as laboratories. They are constructed entirely of metal and glass, the wall of the room where the hood is located being faced with tile. Separate ducts made of vitrified tile, having one outlet at the top and another at the bottom of the hood, extend from each hood to the ventilating system. The fume hoods in the bacteriological laboratory rooms are equipped with gas, vacuum air pressure, hot and cold water, a small five-inch porcelain sink, and also outlets for plugging in electrical equipment. In the Director's private laboratory, in the various chemical laboratories, and in the media room, the fume hoods are further equipped with steam baths. These baths have tops of alberene stone set flush with the table top or floor of the hood.

All work tables have five-inch porcelain sinks located at convenient intervals (Fig 4). A special faucet is located over each of these sinks and will deliver hot water, cold water, or a mixture of the two.

There are special incubator rooms on the second and third floors. These rooms are insulated by compressed cork four inches in thickness which is covered by cement plastering. The rooms are heated by electric resistance coils. The temperature is regulated by thermo-regulators.

All the rooms intended for various miscellaneous work, the laundry, machine and carpenter shop, stock rooms, record rooms, etc., are equipped with the most modern apparatus obtainable. The entire building is provided with a telephone system and an electric clock system.

Facilities for Routine Work

In the top of the building, the stills—water and alcohol—are located, and distilled water is delivered in block tin piping through two lines to each floor of the building and, especially to the large room for the preparation of media and glassware. The arrangement of this room is possibly of special interest. It is provided with a large hood over the sterilizing equipment and with cranes for lifting the baskets of glassware; steam vats for boiling the test tubes after preliminary sterilization; and battery of autoclaves of the Bramhall, Deane type, two with twenty-four-inch doors, two with sixteen-inch, and six with twelve-inch doors. These autoclaves are equipped with both steam and air pressure, and with vacuum pressure so that air can be quickly exhausted. After steam sterilization has been completed, the steam pressure can be replaced by air pressure for rapid cooling without lowering the boiling point.

The construction of the sterile rooms (Fig. 7) deserves mention. It was specially designed to protect against dust. The walls of the rooms are of metal, forming frames for windows down to a point level with the table top in the room. Below this point they are filled in with expanded metal which is afterwards plastered flush with the window frames to form the walls from the windows to the floor. The doors are metal covered, suspended from above, opening and closing on tracks and rollers.

In order to assure ventilation and at the same time to reduce air contamination to a minimum, the side walls containing the windows extend only

to within two and one-half inches of the ceiling, thus leaving an air space. Direct passage of air through this space is prevented by metal aprons. The accompanying views and plan of the sterile rooms (Fig. 3) show that the construction is simple and practical, providing ventilation with comparatively little contamination.

So much of the space of the building had to be devoted to the actual work, that it was not possible to provide both private offices and private laboratories for individual members of the staff, yet a large proportion of the staff require quiet rooms where they can retire for study. In order to compensate for the lack of offices one of the largest rooms is assigned to the library. In the library the standard books of reference and the important journals are kept accessible for all members of the staff. It is expected that this arrangement will provide adequate space and quiet for all.

Extension of Laboratory Service

Attention has been paid to every detail of the equipment in order to have the apparatus, the various kinds of power furnished, and the arrangement of all appliances as modern, sufficient, and convenient as possible. Such completeness of detail would be desirable to have in every health laboratory; in the laboratories of the New York State Department of Health the best obtainable equipment is a necessity. The municipal and county laboratories look to the central laboratory for inspiration and information, and the central laboratory is organized and equipped as a model. No inconsiderable amount of time and effort is expended by the laboratory in Albany, outside of its principle activities of diagnosis and of the production of biological and chemical products, in encouraging development in smaller laboratories all over the state.

The new laboratory building is evidence that the laboratory has given increased service year by year and that physicians are taking advantage of the diagnostic service, and are using the therapeutic and prophylactic products which are supplied. It also testifies to the important place which the laboratory holds in a public health organization.

It is probably apparent to the least observant person of modern progress that there is a strong movement towards a unified, organized, cooperative medical service—a movement which the experiences of the last few years have accelerated. But whatever forms it may take, certain phases of preventive medicine will probably always be based upon laboratory findings, the need of laboratory work will grow with the growth of all the various branches of this socialized medicine, and additional laboratory facilities must be provided to meet the demands coming from directions which are now unforeseen. Also, many research problems of the greatest importance remain to be solved in the laboratory.

CHILD LABOR IN THE UNITED STATES

No figures have been compiled to warrant the recent assertion that child labor in the United States has been reduced 40 per cent since the child labor tax law went into effect, according to latest advices from the Internal Revenue Office. While a marked decrease has been reported in those industries affected by the law, it applies to only a small number of the occupations in which children are gainfully employed. By far the greatest number of child workers under sixteen are listed in other occupations.

There has been a strong movement in many states to increase the school age, and nineteen states strengthened their compulsory school attendance laws in their legislative sessions last year. In several states, too—notably North Carolina and West Virginia—child labor laws were amended to bring them up to the standard set by the Federal law. Many states, however, still fail to provide adequate protection for their children, and efforts will be made this winter to strengthen compulsory attendance and child labor laws to reach those children who do not come within the scope of the Federal law, and to provide for their strict enforcement.

ILL HEALTH A SOCIAL OFFENSE

In an ideal community, responsibility for sickness, like responsibility for crime, would be placed where it belongs and a penalty exacted; anybody's illness would mean a disgrace for somebody, says Dr. William H. McCastline, health officer, Columbia University, as reported in the *Detroit Free Press*. Unnecessary ill health, preventable weakness, should be considered an offense against society. It is truly that.

Doctor McCastline thinks it is quite feasible to provide for the whole public as comprehensive a health program as that which obtains at Columbia, for the lack of which he believes America is at the present time only 50 per cent physically efficient. Two outstanding facts were emphasized by the results of the selective draft: a high bodily average, perhaps amounting to notable superiority of the normal Americans; and a startling number of Americans who are not normal.

A general study of the health and vitality conditions of students at Columbia shows a great number of individual health problems even among selected youths. Ninety per cent of these are easily solved when taken up promptly. Advice cannot be given except on actual data, but community education should see to it that physical incompetence does not result from ignorance. The expense is insignificant. When the cost of John Smith's rheumatism or other disability to the community is considered, the community has a right to take up the matter of his cure through an investigative health service.

Before such a program could be effective, a strong national interest with increased facilities would need to be provided. The state and individual responsibilities should be locally assumed, but all public health efforts should dovetail into a nationalized scheme looking toward uniform state legislation in health matters.

TRACHOMA IN THE CAMPS AND HOSPITALS OF THE ARMY—FROM A MILITARY POINT OF VIEW

By BURTON CHANCE, M.D., Philadelphia.*

THOUGHTS of trachoma, and the fear that it might infect the country, have deeply occupied the minds of American ophthalmologists and sanitarians for the past fifty years. As the disease is found well nigh universally, the admission into this country of immigrants of the lower orders from eastern Europe, Asia Minor, and the Mediterranean provinces; Arabia, Palestine, and Egypt, as well as from parts of Prussia and Russia, regions of the earth where the disease has been known to exist for centuries, has increased the menace excited by the infection imported by the early Irish immigrants at about 1850. Yet, from the investigations by the Public Health Service a number of years ago, it was learned that this country contains certain somewhat isolated areas where the disease exists, and it was found more or less constantly throughout Appalachian America, in some portions of which region the infection was found to occur in as high as 12 per cent of the population, while in others an even higher scale of infection was found.

A Widely Prevalent Contagion

Trachoma has been classed by the Government as a dangerous contagious disease and, because of the widespread prevalence in the areas of the United States alluded to, the Public Health Service established in these sections six ophthalmic hospitals for the treatment of the disease. These hospitals have been maintained in operation for several years and, according to the report of July 13, 1917, during the previous year a total of 19,530 patients was treated. Entire families, including both extremes of life, were found suffering from trachoma. Accordingly, the officials of that service uttered a cry of warning as to the dangers incident to the enlisting into the Army of recruits affected with trachoma, and defined "that it is our duty to prevent the admission to the Army recruits who may spread the disease."

The history of European wars shows that trachoma became a grave menace to the efficiency of the fighting forces by invaliding thousands of men, at one time blinding large numbers; indeed, so great has been the prevalence of trachoma in armies that it has been termed "military ophthalmia." Its introduction into armies has almost always come from the surrounding civil population, commonly from the areas from which recruits have been accepted, who in turn give it back to the people often with increased severity when discharged after serving their enlistment or when they have become incapacitated.

It is said of the Belgian Army that in the first half of the nineteenth century one soldier in every five suffered from trachoma, and it has been stated that in the past century and a quarter, the English, Prussian, and other armies suffered from the ravages of the disease; while during the Russo-Japanese War trachoma was a formidable enemy to be reckoned with in the Japanese army. In the first half of the Great War, an epidemic of trachoma is reported to have broken out in France, having been brought into the country by the African soldiers and laborers; nevertheless, the disease in the army was checked by the quick isolation of all its victims. This report excited the fear that our soldiers might be dangerously exposed from contact with the Allies. The sequel, however, shows that from the care instituted by our Medical Corps and the concentration of the troops in a designated sector, the disease failed to spread among the American forces.

Afflicted Draftees Met With

At the time of the Declaration of War by this Country, in April, 1917, the presence of trachoma was cause for the rejection of a recruit. The Surgeon General's office was keenly alive to the possibilities of the case and early sought to impress upon the military authorities the importance of preventing the admission into the Army of any infected recruit. In the initial regulations for the Selective Service Act, May 18, 1917, the presence of this disease caused rejection, and throughout the War the Medical Department sought to protect the Army and the public by insuring isolation of the infected, as well as provision for their treatment at special hospitals. The Surgeon General recommended that a concentration camp, in all respects like a National Army Cantonment or a National Guard Camp, be established for the treatment of those infected as well as providing for the training of the soldier, with a staff attached to carry out the form of treatment pursued by the Public Health Service at the hospitals at Grayson Springs, Cerulean Springs,

*Read at the Meeting of the American Ophthalmological Society, Atlantic City, N. J., June 16-17, 1919.

and Olympian Springs, in Kentucky; and, realizing that errors in diagnosis might occur whereby a draftee affected by a benign conjunctivitis would seek to avoid military duty by advancing the false plea of "trachoma," that all affected by a suspicious conjunctivitis be retained and committed to hospitals for treatment and held until the course and treatment verified the diagnosis.

In order to exclude none at all likely to be available for military duty, it was suggested that, in the second draft, such infected ones as might properly be classed in the "deferred remediable group" could be accepted with safety pending treatment at the Concentration Camp. And, further, all afflicted, but otherwise qualified, whose visual acuteness was at the standard or, if below, capable of improvement, in the opinion of the opthalmologist of the Advisory Board, if improved by treatment, would be accepted. It was cause for great regret, to those deeply interested, that these suggestions did not receive the approval of the military authorities.

In the Medical Department's desire to spare no effort to cure the disease and to prevent its spread, the methods of the Public Health Service were studied and carried out in a small group of true cases which were operated upon by Surgeon MacMullen and were later sent to duty at the various camps.

Incidence in American Army

In spite of all precautions, it was found that Boards had accepted draftees afflicted, and these were in the training camps to which draftees from infected districts were mobilized. And, further, the sick and wounded reports showed that many were discharged to civil life who, it was feared, might prove to be a dangerous menace to their several communities.

As is well known to all, the ophthalmologists assigned to posts throughout the Army spared no exertion to segregate all suspicious cases of conjunctivitis and, as time went on, such cases as improved rapidly under treatment or were of a doubtful diagnosis were retained in the base hospitals and every precaution was taken to avoid the possibility of contamination; while, from military necessity, those with far advanced trachoma, presenting pannus, scar tissue, induration, and granules on the bulbar conjunctiva, were recommended for discharge from the service. But by June, 1918, according to the "Standards of Physical Examination, Provost Marshal General's Office, No. 75," trachoma fell under the classification of those who "shall be unconditionally rejected from military service."

It may be of interest to know something of the experiences in the armies of the Allies and others, although full reports are not yet available.

Experience in Other Armies

Kirchner of Berlin,[1] from his observations in the Prussian Army up to 1917, declared that, thus far, trachoma had proved to be an entirely negligible quantity in military problems; yet Zimmer,[2] of Avignon, found in ten months' service 27 per cent of his ophthalmic cases to have been thus afflicted, and during his captivity in Germany he observed that 50 per cent of the Russian prisoners had the disease.

Hanford McKee,[3] from the scarcity of cases found during his association with the Canadian forces was led to believe that trachoma has almost entirely disappeared as a military disease.

Sir James Barrett,[4] of the Royal Army Medical Corps in Egypt, made a rather startling contribution, for he records that in 1915, practically none of the soldiers contracted trachoma, and such as were afflicted came from Australia!

Eason,[5] of the Egyptian Expeditionary Forces, in discussing Military Ophthalmia in Egypt, in the period 1915-1918, recorded 64 cases of old standing disease and 39 cases of trachoma, 26 of which were found in Australians. In one's ignorance one is startled to learn that trachoma is prevalent in that but recently discovered continent. Of the 26 it was asserted that only two had possibly acquired the disease in Egypt! This circumstance throws a flood of light on the supposed contagiousness of trachoma amongst Europeans and, incidentally, on the legislation adopted in the various countries with regard to persons suffering from trachoma; for it must be remembered that practically all Egyptians are diseased; and yet, despite the fact that the Egyptian Labor Corps worked for weeks and months alongside the Australian and British troops, and that large numbers of Egyptian orderlies served in the British hospitals, there was entire freedom from infection. Accordingly, trachoma has been practically non-existent as a disease among the British troops in Egypt and Palestine. These officers did not hesitate to declare that with modern habits of personal cleanliness and camp sanitation, trachoma is not actively infectious among large bodies of men and, accordingly, there could be no danger of the army becoming infected in Egypt; and they believed that discharged soldiers infected with the disease would not spread the disease on their return to England.

[1] Kirchner: Ann. d'ocul., Brussels, clv, 111.
[2] Zimmer: La Clin. Ophth., 1916, xxi, 723.
[3] McKee, Hanford: Tr. Ophth. Soc. U. Kingdom, 1918, xxxviii, 324.
[4] Barrett, Sir James: Brit. Jour. Ophth., 1919, xiii, No. 2, p. 78.
[5] Eason: Tr. Ophth. Soc. U. Kingdom, xxxviii, 30.

As to ophthalmia in the Turkish army, from figures from one of the prisoners of war camps in Egypt it is evident that trachoma was prevalent among Turkish troops; for, from July, 1917, to January, 1918, in an average monthly camp population of 8,000, among 1,163 cases of ophthalmia, 290 were simple trachoma. Such a record might have been expected since trachoma, next to malaria, has been known to be the most prevalent disease in Palestine.

From the establishment of the organized medical service in the camps and hospitals in America, to January 1, 1919, trachoma was reported from 36 posts, and the total number of cases equalled 860. In only three camps did the number exceed one hundred cases, to wit: Taylor 125, Cody 191, Greene 122; while at Cape May there were 64, and at Pike 69. With these greatest numbers, the numbers at the others ranged from 1 to 45, the total average being only 23! It can thus be seen that the disease was not a problem after all.

It is not at this date possible to obtain the statistics of the overseas cases. As we have already learned from Lieutenant Colonel Greenwood's interesting and graphic reports at the recent meeting of the American Medical Association, trachoma was sought for from the earliest days of the arrival of the forces. In the contagious stages, or when suspected, all cases were sent to special base centers where they were segregated and treated under precautions to prevent the spreading of the disease, and the infected and others were instructed in the care of towels and handkerchiefs. Severe cases requiring lengthy treatment and whose vision was likely to be reduced, were as speedily as possible recommended for discharge and routed back to America. They were passed on and on from one hospital to another until, as was the course in my own cases, they reached New York, or Newport News and, finally, Cape May.

My own army experience with the disease occurred in the service at Camp Jackson, Columbia, S. C., from September to December 22, 1917, and, for the period from May to December 4, 1918, as Chief of the Ophthalmic Section of the General Hospital No. 11, at Cape May. To the Cantonment at Camp Jackson were sent draftees from the Carolinas, eastern Tennessee, Arkansas, and Florida, comprising a goodly portion of the lower Appalachian region. I served on the board of experts in the examination of the draftees and, when the Base Hospital was established, in the wards as well as on the Board. The Committee of Ophthalmology of the Council of National Defense, cooperating with the Surgeon General's Office, had anticipated a horde of reeking cases, so that I, having striven all my professional days to escape trachoma, had visions of returning home blinded and a menace to my family. But either the Public Health Service had so thoroughly cured the eligible young men, or the opthalmologists of the local draft boards had so skillfully diagnosed the diseased lids of the draftees that, up to Christmas, 1917, I rejected only thirty-five undoubted cases of trachoma, and three other suspicious ones of whom I felt safe in classing as granular conjunctivitis. I turned the eyelids of every man presented to me, irrespective of the complaints or the object of the examination. The follicular type was that most encountered, although several had granulations in the bulbotarsal folds, and a few showed cicatrices of the tarsal conjunctiva. I did not see a case of trachoma with pannus. Several of the cases had quite active symptoms. These were isolated and treated at first in an early established "Field Hospital," but later on, when the Base Hospital was opened, a ward was set aside to receive them. Here were pursued the commonly accepted "mechanical measures," to which I added the swabbing of the upper retrotarsal folds with glycerole of tannin. At that period the subject of the disposition of the trachomatous was not yet settled. In recording the cases I made every effort to impress upon the rejected men the importance of the disease and directed them to report to their physicians and to their local boards.

Incidence in Overseas Men

At Cape May I received a small number of patients from posts in America, but the rest were returned overseas men. Many of the men had enlisted and had gone over with the First Army, while several had gone over with the Canadians, and some had enlisted in British organizations. More than one man declared that his eyes first became acutely inflamed on the voyage to France. Up to January 1, 1919, 64 cases were reported as having trachoma. Of these I wish to speak of 26 undoubted cases, only 3 of which were unilateral. Every man declared that the disease arose after entering the Army; yet, on closer questioning, admitted having had ophthalmia in past years. Only 4 presented the follicular type solely. The others exhibited cicatrices in the tarsal tissues; 5 showed pannus and involvement of the corneal tissues; 3 showed granulation of the bulbar conjunctiva. One had large exuberant granules, the like of which I remembered as having seen years ago before the stringent rejection of immigrants became enforced. He was a horse ranchman; he was evidently suffering from a re-

crudescence of the disease because he admitted having had previous attacks.

None had active ulceration of the cornea. One had dacryocystitis. One of those with pannus was a negro from Maryland. None of the other patients, those who had had an eye excised because of injuries, etc., exhibited signs of trachoma. I saw no signs of the disease in any commissioned officer under my care or observation. Two patients were Indians from the Southwest.

I had the men isolated in rooms as far away as could be from healthy men until it was possible to obtain two cottages adjacent to the hospital. By this time Lieut. William A. Krieger, and Lieut. Warren Reese were assigned to duty at the hospital. They alternated weekly tours of service. On Mondays I made a regular tour of inspection of the quarters and examined each patient, directing the treatment, and recommended the disposition of the cases. All patients in the Ophthalmological Section were given frequent douches of sulphate of zinc. The routine treatment of the trachomatous consisted of repeated daily cleansing of the conjunctival sacs with weak bichlorid of mercury solutions, and in the active cases mechanical measures were persistently carried out. Two or three times a week, boroglycerid and tannoglycerid applications were made to the fullest extent of the membrane, with extremely satisfactory results in most cases. Expression by Knapp's roller-forceps was practised by Lieutenant Krieger with great benefit; one case, with abundant and prodigious granulations, from which the man had not been able to open his extraordinarily swollen lids for several weeks, yielded almost miracuously after thorough expression. Except in this last case, none presented unusual symptoms; at least, nothing beyond the like of which I had had at my hospital in Philadelphia. I did not regard any as worthy of the operation for the excision of the retrotarsal folds.

The men were kept under surveillance until the discharges became mucoid and the follicles absorbed, with sufficient regression to justify "S. C. D."

AID FOR INSTITUTE OF TECHNOLOGY

A new plan of cooperation which may have far reaching effects on the educational and industrial structure of the nation has been evolved by the Institute of Technology, Boston, Mass., in its campaign to raise new endowment funds so that faculty salaries may be increased. The plan puts the institution into the position of being retained in a consultant capacity on an annual salary basis by the various industries in return for which the Institute will permit the corporations to make use of its extensive library, files, and plant, and to consult with members of its staff and faculty. In addition, it will place at the disposal of these corporations a record of the qualifications, experiences, and special knowledge of its alumni, and will advise as to where especial knowledge and experience in any given subject may be obtained.

WILL DISCUSS INFANT WELFARE

The medical, philanthropic, and administrative phases of infant hygiene will be dealt with at an international congress to be held in London, in September of next year.

STUDYING EPIDEMICS IN POLAND

Members of the interallied medical mission which is making a study of typhus and other epidemic diseases in Poland are: Doctor Visbeco, chief of the French Military Health Service; Col. Hugh S. Cumming, representative of the health service of the United States; Dr. Aldo Castellani, of Italy, professor in the School of Tropical Medicine, London; and Dr. George S. Buchanan of the English Ministry of Health.

APHORISMS ON HEALTH

The student health service of the Ohio State University furnishes free medical advice and treatment to students, but goes farther than that in its aggressive health propaganda which emphasizes that the great hope of modern medicine is the *prevention* of disease. Their literature contains advice against worry attitudes, excesses of any kind; it outlines rational every day practices in the interest of physical well being, and contains such health suggestions as the following:

"When you feel you are losing ground, and every trifle magnifies, annoys, and irritates, *relax* for a few minutes each day.

"If you would be healthful and efficient, keep your head up, shoulders back; stretch your neck; try to touch some imaginary object with the top of your head. Make it a habit to keep the back of your neck pressed against your collar. Watch the result."

LABOR PROBLEM IN BRITAIN

The necessity of better housing and better shop conditions in British factories from the standpoint of sanitation which has long been apparent has finally materialized into a determination to standardize shop conditions. This is due, undoubtedly, to the protests of returned soldiers who have lived a life of cleanliness out of doors, and who now refuse to reenter the old shops which do not afford even ordinary comfort.

"The very handicaps which stand in the way of rapid sanitary reform, also operate against reform of mechanical process and equipment. Most plants are built compactly in the hearts of cities where expansion is costly, and contingent upon the willingness of the owners of adjacent property to lease or dispose of their holding," says Burwell S. Cutler, Special Trade Commissioner, in *Commerce Reports*. "Operators also fear that using space for elevators and light and air shafts will cut down production. They are now much more concerned in crowding their floor space with productive machinery of the newest types so as to compensate for the loss of man-hours by the inauguration of a 48-hour week. But employer and employee are together working out a new industrial relationship, a new type of joint responsibility as between men of the same race, the same nature, and a thousand years of common history. They are homogeneous and they seem to understand each other at bottom."

HEALTH CLINICS

FLORENCE MEREDITH, M.D., Director New York Health Center for Women and Girls; Consultant, United States Public Health Service; Medical Examiner, Wellesley College; Instructor in Surgery, Tufts College Medical School.*

WE are of necessity thinking along the lines of reconstruction of health after the destructive blows of warfare that fell not only on the men themselves, but often upon the women who replaced them in the industrial and business life of the country. The need for reconstruction on such a large scale has brought more vividly to our minds than ever before the very great gain in human happiness and wellbeing if evil of all kinds, including physical, could be prevented. Every medical and social organization has been impelled to do its share in this great task of prevention. It has been tackled from every possible angle.

THE SCIENCE OF HEALTH

Hygiene is the science of health. It is not disease detection merely, nor even disease prevention. It presupposes health conservation and health promotion.

That the people want health and a health point of view is evidenced by their cooperation once their interest is aroused.

That they do not always get what they want from the physician is shown by the popularity of cults that do without doctors, substituting an esoteric philosophy of life for scientific care.

The Health Clinic practises health conservation, and promotes health by education before illness has arisen.

Health Maintenance the Program

Plans for the actual permanent maintenance of health, such as we have developed at the above mentioned center,—looking farther than the cure of disease, and even farther than its prevention, had not, so far as I know, been developed until March of this year, when the Health Center was evolved. We believe that the next step in medicine to be elaborated by the medical profession, is that of developing methods which seek not so much to avoid an evil thing, such as preventive methods seeking to avoid disease, but to get and keep a good thing,—health. So, rather than speak of prevention, we speak of conservation, putting the question of disease still farther behind us. The success of the Center is the vindication of our aim. We have held repeated conferences at the Center, attended by women physicians from all over the country, and we have demonstrated to their satisfaction, as we have to our own, that health is an ideal toward which even the humblest will strive if it is properly presented to them, and that education toward health produces results not to be hoped for from education against disease.

A number of ideas for the further extension of health education have risen as a result of this experiment. It is of course first necessary that doctors realize the necessity and desirability of more individual health education than has ever been thought practical in the past. Second, it seems essential that other centers such as the one in New York be started all over the country, as has been done in a number of places. It seems especially desirable that hospitals themselves should establish health clinics, to do this purely medical work for which strictly medical organizations should be responsible. A very natural conclusion is that if we are to have health clinics we should have "health doctors," those who specialize more or less in the care of the well.

Health a Personal Objective

Before presenting the work of the Center, we may look over what is already being done by the medical profession apart from the cure of disease. First, it has been doing a great deal for many years toward public health, and no one would question the importance of beginning there, the remarkable way in which this work has been done, and the equally remarkable results that have been attained. In no other nation in the world is public health so safeguarded. Public health work is of necessity done very largely from the point of view of prevention. It deals primarily with populations as a whole; and secondarily, with the individuals as parts of that whole. Then we have tried to prevent disease in other big ways, dealing with the health of the factory worker, for example, as a great whole, and trying, by improving conditions in factories, to improve the health of the workers in them. Housing has received much attention, and we have tried to promote the

*Read before the War Work Council, Young Women's Christian Association.

health of individuals by improving the place in which they live. Desirable as are all these efforts, we have often felt that there is a weak link in the chain somewhere, for those who work in the most ideal factories and live in the most model tenements are not of necessity the most healthy individuals. The reason is, in our opinion, that we have tried to give something,—health,— to those who did not know enough about health to care about it. Now it seems plain that if we can take just one individual and show him in his own life what health will do for him, actually demonstrate to him that he is a more efficient and happier man with health than without it, and can show him what it is that makes the difference between health and the lack of it, we shall have placed in his heart a desire for health which will make him go after the conditions of health himself, rather than turn away from them when they are offered him. The work of broader scope should certainly proceed, but unquestionably it should be supplemented by definite work with individuals. By far the greatest need at the moment, greatest because least realized, is for a greater personal appreciation of health, and knowledge about it gained through education imparted by the medical profession to individuals.

Health Habits to Be Acquired

We have seen that illness is a personal matter, but not that health is too, that it is very largely dependent on individual habits of living. Public health demands first that everyone so live as not to be a menace to the health of others, and it is now demanding that he live so as to avoid disease himself. If we could only demand, too, that he live so as to be at his own physical best constantly, what a gain would be made in the sum total of human welfare!

In the past we have been more or less excusable on the grounds of not having any very definite information to give individuals, but there is no such excuse now. We have a number of well established laws of health applicable to practically the whole population, and there are hundreds of others that can be formulated for individual cases.

The work that most nearly approaches health education at the present time in hospital work is that done in ante-partum clinics and in baby hygiene clinics. There should be just as thorough work done in health education, not disease education exclusively, for those of all ages of life. Sex hygiene means everywhere the avoidance of venereal disease; industrial hygiene the avoidance of occupational hazards, and so on. About the only group to use the word hygiene to mean health is the dentists. They do not urge the use of the tooth brush to avoid toothache or false teeth, and do not even talk a great deal about pyorrhea. They do stress the advantages of good teeth and tell us how to keep them. They have carried on splendid propaganda; as a result, every growing child knows how desirable it is to keep his teeth in order and knows how to do it. Have we been equally zealous in spreading the knowledge of the value of good feet, or good eyes, or a good digestion, and can we as truthfully say that the public knows the advantage of these things, and of many others within our realm, and knows how to keep them? The wide prevalence of a state of being half alive is certainly partly the fault of the doctors in whose care is theoretically if not actually the health of the populace.

While Gorgas announces the final wiping out of yellow fever, a doctor from California announces that 65 per cent of the population of that large state belong to cults that do without doctors. We might as well face the fact that if these people got what they wanted from doctors, not only cure from illness, but increased everyday happiness and efficiency through improved health, they would not do without them. These people are not all feeble-minded, as we often think. They want health and a health point of view toward life, and they go to what seems to them the most promising place to get it. We can give them what will be of more value to them than an esoteric philosophy of life, if we will take the trouble.

The Practice of Health Conservation

There are a certain few physicians who are doing this. While practising internal medicine they are virtually practising health conservation. They recognize the fact that the very greatest opportunity of producing health is by means of health education before illness has had a chance to arise. They take only as many patients as they can give this care and they succeed in keeping them well, as the sleek, all-enduring bodies of the youth of either sex and the well preserved old people in these families, usually those of wealth, indicate. They are seldom ill, seldom have to be given medicine, and if anything untoward happens to them, they are promptly referred to a specialist in the disorder to which they succumb. Such care ought to be possible somehow for all.

It was on this theory that special provision was needed for health education of the individual, that the Health Center was opened. And it is for the further extension of this work, in other centers and in hospitals that I am speaking to-day. There are probably millions of individuals in the United States who could never by any chance afford to have a private physician even in illness. For

them we have provided clinics where they get the best of medical attention free; but if they happen to be well or nearly so, and cannot afford the expert care of the few physicians in every community who would give them anything approaching adequate health education, they are left to their own devices in regard to remaining in health. For these millions should be provided some form of individual care in health, as well as for their care in illness. So far as I know this

Fig. 1. In the New York Health Center for Women and Girls many for the first time learn the relation of habits to health. They are instructed as to their needs and helped into the right ways of living.

extension of hospital work to include health education has not been tried or even mentioned yet, but that it is a feasible plan I hope to show in a brief outline of the work of the New York Health Center where the plan has been carried out under private auspices with great success.

Function of the Health Clinic

There are some advantages about having the work done apart from a hospital, if private organizations can be induced adequately to support such clinics. The chief advantage is that it can stand more definitely for health if it is not under the shadow of an institution intended primarily for the care of the sick. This tends to put the emphasis on the right point at once and makes no special efforts necessary to shift it on to health, as would be the case in the hospital. The only efforts we have had to make have been in the direction of bringing girls to realize that even though we are doctors the well body interests us in this case as much as the sick ones. Outside of a hospital we probably draw more of the sort of people whom we really wish to reach than would be the case in the hospital clinic, where a larger percentage would attend of those already "hospitalized." There was a tendency in the beginning for the girls to consider our center another kind of clinic for the sick, until we adopted the phrase "to keep well girls well." This objective seems to me scientifically and economically the highest aim we can ever hope to reach, and one not so remote that it is not worth trying for. Most of the girls who come to us now have no particular complaints to make of their health. They know they are going along blindly, and wish to be enlightened; or perhaps realize that their physique does not match the life they are called on to live, and wish to get a better balance between the two.

But our work is purely medical and could be done as well as a regular part of a hospital. The fact that social and other organizations have been so ready to take up medical work when it has been presented to them by the medical profession, or even when they have themselves planned it, is vastly to their credit; but in the question of health conservation, doctors should do more than merely instigate an interest in health for other organizations to carry out. They should also carry out a large part of the health programs themselves under their own charge in an institution dedicated solely to medical science, where the public would know where to find it, if it were there, and where health education could be further elaborated under the direct backing of science.

Fig. 2. The most painstaking general and special examination searches out all possible sources of trouble, the soundness of advice depending upon a complete knowledge of the facts in the case.

Even then the cooperation of public spirited institutions would be as necessary as ever. The fact that hospitals have all the equipment ready and lying idle in the evening, the very time when a clinic for well working people should be held, makes it seem quite possible to establish health clinics without much additional trouble. Another advantage in having the clinic in the hospital would be that the facilities would be at hand for the most extensive diagnoses. Referred patients

would not be put to the trouble of hunting up another place, even if they had to come at another time; and they would not have to get acquainted with another institution and another group of officials which, strange as it may seem, is often one of the reasons why referred patients do not "refer." The hospital clinic would be more generally known to the public, and be definitely understood to be free, which disadvantages have to be overcome in the free private clinic or center.

Fig. 3. The régime is always adapted to the individual case. Collective methods are often far from being corrective methods, especially as related to heart conditions.

Our center is free to all women and girls who work in any line,—business, industry, home, or profession. At first we made special efforts to interest the girls we wished to reach by giving noon-time lectures in factories and stores and evening lectures in working girls' clubs; but in less than a month we found that for this purpose they were quite unnecessary as we were booked up three weeks in advance all the time. We continue the lectures however, for educational purposes, to interest girls in their health, advising them in a general way, and urging them to go to their physicians for further individual advice, to find out which way they are headed.

Our method of health education is based on a complete physical examination, carried out in great detail. All possible data are obtained in regard to the past and present condition of the patient, family history, working and living conditions, mental status, and her needs of all kinds. We do not do all the special tests for disease conditions; tests are made for only those most commonly found unless there is some indication of their necessity, in which case the girl is referred elsewhere for the more elaborate tests. In order to be scientifically sound, health education should be based on nothing less than the most accurate available knowledge. It is only in dealing with groups that general rules are of any use, and then only because they will probably benefit the majority far more than they will hurt the minority.

The case history we believe should be taken by the doctor herself whenever possible, as it seems to tend toward greater accuracy. We also prefer to do our own recording in order to do away with a third person in the room, which we never permit except in the case of visiting women doctors.

A questionnaire in regard to living and working conditions was formerly filled out by a social worker, but we found that all the data thus obtained came out naturally during the doctor's examination and could be recorded by her as it was given, rather than to subject the patient to an extra questioning. The importance of the facts along this line is not to be underestimated, however, as is evidenced by the strange things which sometimes appear in this connection, without which the key to the patient's condition would be lacking.

We have also on our staff a specialist in mental conditions, who often solves the problem of lack of response to all treatment and succeeds in getting rid of the faulty mental habits at the bottom of the failure. She is a physician who does not read abnormalities into every case, but puts her emphasis on mental health, as we do on physical, and the habits of mind necessary thereto. Not

Fig. 4. Percussion of the liver constitutes a part of the routine examination. A health program first eliminates the possible disease.

every case is referred to her, less than 10 per cent, in fact.

We are in touch with dietitians who, in case of under or overnourishment, compute calories in an average week's menu. The weekly diet records are used for the purpose of determining chemical content more often, however, for the purpose of establishing a more nearly balanced ration than the average working girl is in the habit of getting.

Special diets for pathological conditions we do not handle here.

An orthopedic examination is given to every patient in which posture and feet are examined, measurements taken and muscle-strengths tested.

It will be seen that we endeavor to leave no stone unturned to find out how to improve the health of the girl and make it more secure. If any girl does not feel entirely fit, shows any signs of giving way under her work, or simply wishes to be sure that she is on the right track, we want to be able to give her sound advice. We often have girls who are working in the day, going to evening school, and doing some of the family housework, who realize that they are going to endanger their health if they are not careful, and who come to the Center to get advice as to the best way of putting in their time to their advantage in all respects, what they are safe in continuing and what changes need to be made in their *régime*.

Health Program Planned

When every bit of available data is in, the next step is to begin the education of the patient. In order to omit no detail, we often begin at the beginning of the history and follow it through point by point, and explain to the patient whatever seems wise. It will be found rather difficult to talk clearly in untechnical language on subjects usually discussed in purely technical terms, and there is some danger of over-educating the patient; that is, of filling her mind with a mass of undistinguishable facts out of which she gets nothing but confusion. Provided we recall that we are not giving a course in medicine, but trying to give rules for health intelligible to laymen, we shall not get into trouble.

Fig. 5. Palpation and the usual laboratory tests afford data as to the integrity of the kidney.

Fig. 6. Postural defects are searched for and charted. They are made the objects of especially devised corrective measures.

All recommendations are preferably to be made in writing, making sure that the girl understands just what is meant. We use a special blank card, with spaces for the recommendations to be written in and spaces for the girl to check at the end of each week when she has followed the advice that week. We find that adults as well as girls are interested in keeping tab on themselves in this way. Although any grading on medical and physical findings is far from accurate, we use the grading system on account of its psychological effect on the patient. We also grade them on their habits. Both of these grades they have the opportunity to raise to a higher one at any time when they are examined afterward, if they show an improvement in either direction.

The Health Point of View

The improvement usually shown in both respects is often rather miraculous; it is not to be accounted for entirely on the grounds of new and better ways of living, but often largely due to new and better ways of thinking about herself and her health. The result of education toward health is thus partly psychological, and not at all to be despised on this account. The physician who is attempting to educate individuals toward health must be rather more of a philosopher and psychologist than we often are, for the human equation is to be reckoned with in the practice of medicine when it is dealing exclusively with advice rather more than when giving out pills and prescriptions. Anyone who has ever tried to get a patient to alter even one point in his manner of living knows that getting him to do it is by no means as simple as telling him to do it. The teacher of hygiene should know people very well indeed, and at the same time he should know himself very well, what he thinks and why he thinks it, and how to make others think it, too.

In order to provide facilities for the carrying out of our advice in regard to exercise we have in our building a gymnasium, with four physical directors for instructing patients in the use of certain exercises which in a large proportion of cases are found to be necessary as a supplement to ordinary everyday activity. We have it under our own roof because if the girls were sent to regular gymnasia they would be given only general exercises, and because they are not sufficiently far from normal to be sent to orthopedic corrective classes. We have found certain exercises necessary for well girls. For example, abdominal muscle exercises to maintain correct position of the abdominal viscera are a necessity for many quite normal people, especially women, since Nature usually fails to teach us abdominal muscle control automatically. We have not yet been long enough upright. Good posture, too, is essential to health; if not natural it should be taught, and taught much more definitely than is usually the case in gymnasia. Exercises for both

Fig. 7. The patient is made to see the relation of good shoes to good posture and, therefore, to good health. From this viewpoint the prevailing style does not weigh against comfort.

of these purposes and a number of others can be classed with health habits, and taught under the physician's direction.

Girls are taught individually, not in classes, a different set of exercises being mapped out for each girl, or perhaps the same exercises in a different amount or order. They are assigned to our gymnasium for not more than a month usually, and then we try to get them into other permanent gymnasia. We want to keep them only until they have had their taste for activity cultivated and have learned their own need, including the special

Fig. 8. The well poised body in action is the body beautiful. Many of these girls gain for the first time the positive joy of health.

exercises, and especially their own powers. They are usually quite afraid of doing themselves some injury through exercise at first, and we frequently examine them directly after exercise, both to determine by the heart action that they are not over-taxing themselves, and especially to allay the girls' own fears.

Girls Learn to Play

Recreation is also carried on in the Health Center and outside, after having been definitely prescribed for each girl. Our recreation leader cooperates very closely with our medical aims, at the same time making very fair athletes and good sports of the girls. We endeavor to get the girls into permanent athletic clubs as soon as possible, as we wish to continue the educational work with new girls as far as possible.

Social workers can be of great assistance in connection with such a center, through looking up all the aspects of the life of each girl which bear on her health, and helping her to make any adjustments which will result in better carrying out of health advice.

We do not prescribe for any pathological conditions, unless we believe the condition is curable by healthful living alone. If any other treatment is necessary the girl is sent elsewhere. Many girls who come in considering themselves simply "ailing," as so many working girls are, find that they need treatment other than hygiene. The function of the Center is thus also that of a clearing house, to weed out those who do from those who do not need more than healthful living.

Of course, we do not keep as a patient any girl who is in the hands of any other doctor or hospital unless requested to, as sometimes happens. In cases we refer elsewhere, all treatment is withheld until the further diagnosis or treatment is

completed. Occasionally at the request of those giving other treatment we prescribe a general hygienic *regimé* to be carried on simultaneously, as, for example, in connection with treatment of the eye or ear, or with the endocrine gland treatment of obesity, or the medical treatment of gastric or intestinal conditions.

Educational Features of Clinic

It will be recognized that hygiene has two functions, that of an independent method of maintaining health, and that of an accompaniment to other treatment. Special and general health education is always necessary along with other treatment before the best results can be obtained from either medicine or surgery. The health clinic is, however, not always the best place for this education to be given, in special cases it being distinctly the rôle of the specialist in charge of the case, who should be if he is not, the best arbiter of the hygiene applicable to his special variety of cases. But it often happens that this hygiene is no different from that applicable to the same individual under other circumstances, in which case the health center is glad to advise her.

Healthful living, which is sometimes an alternate to other treatment, should always be an adjunct to it. It should be used often as a preliminary to other treatment, in which case it will sometimes be found that the other treatment is unnecessary after all.

In addition to referring cases to others, we frequently have cases referred to us from other clinics, factory hospitals especially,—patients who had applied for treatment but for whom there seemed to be nothing to do; or patients to whom drugs had been given repeatedly for the same condition, for example, dysmenorrhoea or constipation, that the doctor was glad to find a group with time and patience enough to get at the cause of the trouble in some unhealthful condition of living.

It will be seen that this method of teaching personal hygiene is making it a very different matter from the dull, futile affair it has been in the past. That so personal a matter as health should have been handled entirely collectively, when handled at all, and that so fundamental a thing as right living should have been, and still should be considered so casually, is hard to account for. But unproductive as has been any method tried in the past, we are blind if we cannot see the possibilities in individual education, given somehow or somewhere.

The public may discount entirely any general information they may receive about health, but they will hold a very different point of view when the same teaching is given individually. If they are sure that after having examined them thoroughly, a scientifically trained person is of the opinion that they would be better off for bathing every day, for example, and are given a good reason for it, one that they can understand and are told just what sort of bath to take, they are usually very eager to carry out the advice. Even on the rather difficult subject of the use of cold water, internally or externally, and the wearing of un-deforming clothing, I have found pathetic little factory girls quite willing to conform to the advice given, when such advice was given for themselves personally, and by one who obviously had nothing but their own good at heart. A few such girls, doing piece work and earning more money as a result of the instituting of better habits, prepare the ground for the successful planting of good habits in other girls, whether it be for less candy and more vegetable, or the substitution of dancing for crocheting, or *vice versa*. Even though girls have fallen rather far below the normal on account of their failure to live up to health standards, they are seldom so far away that they cannot be greatly helped by a survey of their health according to this educational method.

Health Advice With Assurance

Of all the causes of failure to help, the commonest of all is weakness of confidence on the part of the doctor in his own advice, that is, provided the diagnosis and the advice were right in the first place. If the doctor himself is sure of what he is advising, that it is going to make the individual stronger, happier, and more efficient, he can do a great deal to move all obstacles in the way of successful following of his advice. We have in the past given advice in regard to hygiene tentatively, without assurance, and oftener than not have never tried to find out whether results have been forthcoming. Perhaps this has been due to our not having felt the responsibility for this sort of advice as keenly as for medical or surgical treatment.

We have not held ourselves quite as responsible for the keeping people well as for the curing of them. It has not reflected upon us at all if a family in our care is ill half the time. To be sure it may not be our fault, but again it may. The Chinese method of paying the doctor only while health is maintained would not be practical in this country, for oftener than not the physician who is doing his best to teach health does not receive much cooperation from the patient; and too, the exigencies of circumstances in this country often compel disobedience to known laws of health. But

we should expect and demand results, when we give any kind of advice, and to that end use every resource at our disposal for making our recommendations take hold. If advice is worth giving it is worth having it followed. We should be just as positive on this matter as we are when giving a prescription.

The Group Through the Individual

As the examination on account of its thoroughness requires considerable time, a large number of patients can not be reached in any one clinic, unless a very large staff is maintained. For this reason the *per caput* cost is rather high; but, as each patient is the center of much educational work among her family and associates, we can feel justly that it is not as high as appears on the surface. For example, one girl from a boarding home who had it explained to her that she would improve her health by eating less hurriedly, got the whole group of 125 girls in the home properly to masticate and enjoy their food. Drinking water more and tea and coffee less, have become habits among several large groups who have been educated indirectly through girls who have been improved thus, these facts having been reported to us by the women in charge of the groups. A factory restaurant manager was persuaded to make use of more vegetable and less meat, the former having been found lacking in home dietaries where the latter is not, and indirectly much educational work was accomplished. A store requiring high heeled shoes to be worn by its dressy saleswomen was influenced to withdraw this demand by one of its women after she had learned the unfortunate results to those who have to be on their feet all day of wearing shoes no better than those of the Chinese. While it is desirable in the case of those seriously ill to spend large amounts *per caput* in order to restore health or save life, such expenditure is equally justifiable in health educational work, as is already realized in baby hygiene work. The death rate among babies has been decreased in this way, but not yet the sickness and death rate among adults.

The individual health clinic will unquestionably fill a gap that has long existed, whether it be carried on in the hospital, public or private, in the factory hospital, or in connection with the dozens of other organizations doing medical work, including insurance companies, benefit organizations, settlement houses, or nursing associations. All these have an opportunity which they can use if they will, if in no other way than by placing the emphasis on health. It is to my experience in a factory employing about 3,000 women that I owe my chief hope for the future of conservation, as I contrast these women with those seen in college examinations. It was not because of these ideas being impossible of realization there, that I gave up that work, but because any private business is more limited in its scope as a field for working out new plans than is an organization such as the Young Women's Christian Association to whom I am indebted for my present opportunity. I believe, however, that once it has been demonstrated as practical, the field of health education in industrial as in other fields is unlimited.

On account of the work to be done before the upward trend of civilization can be advanced as it surely will be by the conservation of the bodily health and the often interrelated integrity of mind and soul, we must go into what perhaps seems at first uninteresting and useless with the zeal typical of the medical profession, and make nothing short of health for each individual our aim.

SCIENCE TO RAISE LIFE LIMIT

In the work of the medical profession lies the best hopes of the future, states Dr. William J. Mayo, in his address on assuming the presidency of the Clinical Congress of the American College of Surgeons. He declares it to be quite possible to add fifteen years to the life of man within the next twenty years. Many of the deadly germ diseases are now under control. Typhoid, the former scourge of armies, is practically banished from them. Yellow fever and malaria go with the destruction of the mosquito. Antiseptic surgery cures the sufferer from gallstones, and the diabetic patient lives out his normal years under controlled diet.

This extension of longevity is to be looked for in a prolongation of the productive years of man; and cancer, as the chief menace of middle life and beyond, constitutes the burden of Doctor Mayo's address. Measures for the prevention and cure of cancer have not progressed along with the need. He places his usual emphasis upon chronic irritation as a predisposing factor. He considers that good dentistry has eliminated a certain percentage of cancer of the jaws, and that there is a probable relation between hot food as a chronic irritation factor in gastric cancer.

Improved technic in surgery has extended the operability of cancer to the paradoxical extent of increased experience being accompanied by higher operative mortality and a smaller percentage of cures.

He regards statistical studies in cancer, and more minute observations and reports as of the greatest importance in the estimate of the real efficacy of surgical therapy. He sees promise in the field of radio-active substances, but considers their best field in preparing an operative field against the transplantation of malignant cells during operation rather than in post-operative treatment. Immunity against cancer is sufficiently great to prevent the occurrence of cancer in some persons and to cause its abatement in others. The more highly organized glands are the more prone to develop cancer, and research in the inviting realms of bio-chemistry should be a fruitful direction for study of the causes and cure of cancer.

HANDSHAKING AS A ROUTE OF INFECTION

By H. W. HILL, M.B., M.D., D.P.H., Executive Secretary, Minnesota Public Health Association, St. Paul, Minn.

SHOULD handshaking be considered a serious route of infection?

The infective agents of most communicable diseases of the human leave the infector's body in discharges, normal and abnormal, from orifices, normal or abnormal, of the infector. They enter the infectee's body in the discharges of the infector, at orifices, normal or abnormal, of the infectee. Those pathways of these discharges, from an orifice of an infector to an orifice of an infectee, which infected discharges can follow without disaster to their contained infective agents constitute the pathways of infection. Apart from immunization the chief arts of preventive epidemiology consist in preventing the exit of living infective agents from the infector; in preventing their entrance to the infectee; in diverting or destroying them *en route*; or in a combination of any two or all three. Dealing with them *en route* is usually the most practical. The determination of these routes is therefore essential and the determination of the relative importance of the various routes is of enormous economic value. Lives, time, money have been and are now wasted without limit whenever false notions of relative importance exist, because then the measures taken are futilely directed against minor matters, the chief channels remaining as open as ever.

Remote Causes Sought

The supreme simplicity of many of the pathways followed, their utter unconcealment, has, paradoxically, left some of the most obviously direct and dangerous routes wholly undiscovered up to quite recent years. That disease is something inherently mysterious, has been an almost universal obsession of the human mind and through all man's history has led to explanations of infection the most remote conceivable,—the agency of peculiar conjunctions of the planets, the influence of malign spirits, the effects of witchcraft, the results of unusual weather and so forth,—in general of something as roundabout, as distant from the patient, and as much of a *non sequitur* as the human mind occupied at the moment with the problem could conveniently picture to itself. This mental attitude has led to a curious psychic blindness to the staringly obvious ordinary routes lying right before our eyes which we totally fail to see, the while we painfully work out obscure or intricate exceptions.

Although, as mankind has developed mentally, these beliefs concerning infection have narrowed down nearer and nearer to the patient, still they continued to be considered as something relatively abstract and remote, such as emanations from his body, clothes, etc., and it took nearly a generation to narrow from emanations to discharges, from clothes to skin. Witness the carbolic spray of Listerism, directed against the surrounding air, as contrasted with modern surgical technic, directed immediately against the surgeon and the nurse.

Attack Remoter Routes of Discharges

Even within a decade the remoter rather than the more direct routes of discharges have been the chief to be seriously appreciated and earnestly attacked. For example, in typhoid fever, the long route transfer through water was preached against years before typhoid fever was recognized as spread through the short route of direct contact.

In tuberculosis, the long route through transfer sputum thrown out upon the floor, drying and blowing about to be inhaled by passersby, was emphasized long before the short routes by mouth spray and by hands were detected. Sometimes, as in the case of sputum dried and blown about, the alleged long route danger was not an important or even a real one at all; for sputum, dried to pulverulence in nature, is dried to innocuousness, too. The real path of sputum from the ground to the infectee's mouth is through the handling of those shoes which have stepped in the sputum, provided the hands that do the handling pass to the mouth thereafter without having previously been thoroughly cleansed.

Dodges the Real Issue

This disinclination, almost inability, of the ordinary human mind to face the real issues, the tendency to see the outside of things and not the heart, is responsible for another vigorous propagandum against a long route transfer of the discharges by use of the common towel which, quite justifiable as it is, nevertheless overlooks a ten times more dangerous short route, the transfer of discharges on the hands directly by way of the handshake.

The common towel has been condemned in song and story, legislated against, driven from decent

life as an unmitigated evil, and for quite proper reasons, because hands are constantly infected with human discharges, those of the nose and mouth, the bladder, and bowels. Hence if one uses a towel in common with another, the discharges of the one may be transferred to the hands of the other through the medium of the towel; and if to the other's hands, then to his mouth, owing to the very human habit of putting the fingers to the nose, mouth, or lips at least one hundred times a day. Moreover, the common towel is often used to wipe the washed face and incidentally the lips, as well as the hands; and the next lip wiped on the same towel may well pick up the discharges left there by the previous one, thus receiving the discharges more directly. That the common towel is a route of infection there is no doubt; but, after all, the hands and lips wiped upon it have just been washed, perhaps not well, but more or less to relative cleanliness; at all events, they do not touch the towel in their original unwashed state. As compared with handshaking, the common towel is the long, uncertain, roundabout route,—the handshake is the short, direct one.

Let us confess that despite the crusades against it the common towel, if used only after thoroughly washing the face and hands, is really rather a poor method of transfer of discharges; that it is the wiping on the towel of half-washed faces and hands that constitutes the objectionable feature; and that the real danger of the common towel does not lie inherently in itself, but in deficiencies in the washing that precedes its use.

Confining ourselves to mouth discharges only, for a moment, the sequence of transfer, in the instance of the common towel, is from infector's lip to infector's hand, from infector's hand to towel, if the washing be badly done, from infected towel to infectee's hand, and from infectee's hand to infectee's mouth. In the instance of the handshake, however, we eliminate the washing, whether good or bad, and also the intermediary towel, so that the much shorter sequence of transfer runs from infector's lip to infector's hand, from infector's unwashed hand to infectee's hand, from infectee's hand to infectee's mouth. Theoretically, the point is clear enough that shaking hands, like mouth spray, is a route of infection of great importance; but in what relative proportion to other routes is it serious?

Short Routes of Infection

Certainly there are more direct ways of transfer than by the handshake. If the infectee's fingers go to the infector's mouth and then to his own; or if the infector's fingers go to his own mouth and then to the infectee's, the route is shorter. Such transfers occur constantly when children play with each other, when mother plays with babe, or when careless dentists deal with careless patients.

Even more direct is lip to lip infection as in kissing, or in the exchange of mouth spray in close face-to-face conversations. But mouth spray and kissing are limited largely to the transfer of nose and mouth discharges, while the hands convey bladder and bowel discharges, also. Nor are hand shakes limited in operation to the exchange only of the discharges of the owners of the hands; for anyone who shakes hands with a number of people, not only may transfer his discharges to all of them from his hand and receive all of theirs on his, but he may transfer the discharges of the first to the second, of the second to the third, and so on. The public character who shakes fifty to five hundred hands in rapid succession at a reception may wash his hands first and so eliminate his discharges from transfer to others; he may wash his hands afterwards and so guard himself from the fifty to five hundred risks of infection he has encountered; but he cannot well eliminate the transfer of discharges from the earlier persons whose hand he shakes to the later comers following. The more firm, cordial, and energetic the hand clasp, the more sure the transfer.

Considering the urine and the intestinal discharges, the hands have almost a monopoly of the traffic; in typhoid fever, paratyphoid fever, and dysentery, mouth spray plays little if any part; although in cholera, the vomiting of intestinal contents make the mouth discharges infective, and therefore more or less the mouth spray, also. In all the intestinal diseases other than cholera, however, the hands are the great contact factor, and the mouth discharges may be practically ignored.

Moreover, while it is true that in those diseases characterized by the presence of infection in the nose or mouth, diphtheria, scarlet fever, influenza, measles, tuberculosis, syphilis, etc., the mouth spray is important and at first sight might be considered as of greater importance than the hands; yet the crucial tests of actual practice, as in contagious hospitals, show that care as to hand infection, even though mouth spray be ignored, almost eliminates cross infection; but care of the mouth spray, if hand infection be ignored, reduces cross infection relatively little. In surgical practice, also, neglect of the mouth spray of nurses and doctors is less important than the neglect of the hands, although careful technicians will, of course, guard against both.

The general conclusion of most practical observers has been that the route of hand infection is the great pathway of infection, and is

responsible for perhaps 90 per cent of all contact infection, medical or surgical, excepting the venereal diseases.

Infection Contacts Through Handshaking

We laugh at, and secretly shudder over, the promiscuous embracing of the southern European, the promiscuous kissing of the French, the promiscuous rubbing-noses of the Eskimo. It is time that we laugh at, and shudder over our own hand shake since it is scarcely less intimate as a method of infection contact although we think of it as much less intimate from an esthetic standpoint.

The military salute is every bit as respectful, every bit as cordial, and infinitely more sanitary. "The intimate hand clasp of united souls" can very well be kept, as we keep kissing, for special occasions. Why cheapen it by the formal touching of our fore paws together at every opportunity?

At least a hundred million hands meet in hand shakes daily in the United States. The sociological pathways of infection thus provided are interestingly intricate in their possible ramifications. President Wilson "shakes" with a man from Podunk, who shakes with his Senator's secretary, who shakes with his landlord, who shakes with his doctor, who shakes with his grocer, who shakes with the commercial traveller, who shakes with the cop, who shakes with the asphalt layer, who shakes with the garbage man, all in half an hour. The reverse path of infection from garbage man to president is just as direct as in the path from president down, while the travel of infection is just as likely to be one way as the other, to say nothing of the side lines that radiate out from the direct route. Democracy is splendid, but ours should be a democracy of ideas, not of body discharges!

It will be argued that hand shakes are not dangerous because thousands are exchanged without apparent harm. True; but so, also, shells in war might be argued harmless since thousands are fired that never hit a man. Also, it is true that hundreds of thousand of acorns fail to grow into oaks; but the oaks that do grow all come from acorns; most of the men killed in battle are killed by shells; many of those who die of infection are infected through the hands.

The illogical nature of the human mind is illustrated by that habit which leads us to wear gloves as a protection against the discharges one might pick up from door knobs, "strap-hanging" in street cars, etc. This is right and proper, for the hands of others touch these things continually and leave the hand-owners' discharges on them. But custom demands further that though we may properly wear gloves to protect ourselves from these indirect and intermediary contacts with things other persons hands may have infected, we must *remove our gloves when we propose to touch those very hands themselves!*

Summary

(1) The physician or nurse who after attending a known case of infection should thereafter without washing hands shake hands with an outsider, would be committing an unpardonable breach of technic because of the risk of conveying the patient's infection to that outsider.

(2) The physician or nurse who, already sterilized for an operation, should shake hands with an outsider and proceed to the operation without re-sterilization, would be committing an unpardonable breach of technic because of the risk of conveying infection from the outsider to the patient.

(3) In ordinary life we can not know who is infected and who is not; we *do* know many are infected; is our ignorance as to just exactly who is infected a reasonable excuse for taking the chances of spreading that infection, to ourselves, our friends, and all about the community?

(4) While the hand shake does not rank with kissing in directness, it is not confined like kissing to the exchange of nasal or oral discharges, but includes the discharges of the bladder and bowel, also. Moreover, while the bulk of the discharges on the hands is usually small, the hands are so constantly infected and handshaking is so constantly repeated that, in the long run, it probably eclipses the relatively less common and less promiscuous kissing in its sum total damage.

While every medically or biologically trained person will see the force of this situation at once, the sociological difficulties in the way are very great. The general public do not recognize any danger until it has materialized in disaster. Nevertheless, a gradual training against promiscuous hand shaking is possible and cannot fail in the long run to accomplish some reduction in the transfer of disease.

(6) Certainly hand shaking should be very definitely recognized by all medical and public health teachers as one of the most important methods of personal contact leading to infection.

(7) Persons with infections, not isolated, such as persons with colds, should not shake hands; certainly not with that hand which they use for their handkerchief; in influenza epidemics, hand shaking should be abolished entirely.

(8) The natural sanitary substitute for hand shaking is the military salute.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

LABORATORY FACILITIES IN RURAL DISTRICTS

DR. HARE, addressing the medical faculty of Philadelphia in 1918 on the relations between medicine and chemistry, stated that all the necessary experiments for the application of chemical knowledge to the problems of medicine could be performed with apparatus and reagents contained in a small hand case.

At present it would be impossible to include the barest essentials of a diagnostic laboratory within the space of a good sized room. Moreover, owing to the diversity of knowledge and skill required for the various laboratory adjuncts to clinical practice and to the immense volume of the technic of the latter, it is not practicable to combine with a general practice the conduct of a diagnostic laboratory. Yet, without drawing on the resources of such a laboratory, the clinician is giving but a lame service to his patient.

In the matter of diagnostic laboratories the cities and larger towns are well provided, at least for those who can afford to pay for their services; but there are, in the United States, many rural districts entirely devoid of such facilities.

A law of the state of Ohio provides that each county shall maintain a laboratory for public health purposes. In suitable cases, with the approval of the state Board of Health, adjacent counties may combine to set up a joint laboratory, or to make arrangements with institutions to do the diagnostic public health work of the county.

The application of the Ohio law is limited to public health work but, the principle once recognized, its extension to ordinary clinical purposes would be easy and profitable. This will be more and more the case as the preventive functions of the doctor, and especially of the family physician, increase in importance and receive recognition as cardinal factors in maintaining the public health.

A survey of diagnostic facilities should be undertaken in each state, in order to establish the existence and the extent of the need for public diagnostic laboratories, and for legislation along the lines of the Ohio law. This is advised, not because there can be any doubt as to the need, but as a means of convincing public opinion. It is rarely possible and never advisable to legislate ahead of public opinion.

THE CENTRALIZATION OF FEDERAL HEALTH ACTIVITIES

SPURRED on by the example of both England and Canada in establishing a Ministry of Health, leading health workers in this country are lending their support to the passage of a concurrent resolution providing for a congressional investigation of all Federal health agencies.

This is the first step to secure the enactment of legislation which will bring about the formation of a Federal Department of Health. The need for the coordination and enlargement of Federal health activities was very forcefully pointed out by Dr. W. S. Rankin[1] in an address at the recent meeting of the American Public Health Association. "The present form of Federal health administration is both a grievous hindrance to efficiency in national health work and a positive danger to state health work," says Doctor Rankin.

The solution to the problem seems to be the consolidation of all agencies engaged in Federal health administration in one bureau or department. The organization should be sufficiently elastic to permit extensions and additions to functions as natural opportunities and resources permit.

J. S.

1. Rankin, W. S., M.D.: A Supreme National Need: Coordination and Enlargement of Federal Health Activities. Am. Jour. Public Health, 1919, ix, 819.

SUPERVISION OF INSTITUTIONS BY THE HEALTH DEPARTMENT OF NEW YORK CITY

By FRANK J. MONAGHAN, M.D., Deputy Commissioner of Health, New York City*

THIS is the day of institutions, institutions of all kinds and character. To-day, through the instrumentality of kindly philanthrophists, or through the wisdom of those who guide us in the affairs of the state or city, the institutions of which we, in the Department of Health, must take particular notice, have come strongly to the front. This is to be seen in the fact that while in 1916 there were 667 institutions in which the Department of Health was interested, in 1919 we have 1,045, of which 995 are within the city and 50 outside. This remarkable increase shows the tendency of the times. This increase is due, in my opinion, to the fact that ideas and knowledge of hygiene and sanitation are becoming more widespread. It is, in fact, a part of what has been aptly called the modern health crusade.

The Attitude of the Public

The day when an institution was looked upon as a thing of horror, to be avoided, has passed away; and to-day with the constant reiteration of matters of hygiene and sanitation, with the education of the people themselves along these lines, we find that these institutions are no longer considered places of last resort only, but that now they are even sought after by those who only a few years ago would have rejected them with fear and trembling. To-day it is not the poor alone who seek the care of institutions, but those who have ample means, whose home surroundings are probably of the best, are recognizing the changed condition. These also avail themselves of the opportunities held out to them. Also the new ideas in medicine, the so-called "group system" which is the latest advance, undoubtedly will result in a larger number of institutions of this character coming under the direction of the Department of Health of the City of New York.

This somewhat changed condition and the growing number of institutions, make it incumbent upon the Department of Health of the City of New York to maintain a strict and farseeing supervision of these institutions. This is a particular and well recognized function of this Department and, in the words of one of our contemporaneous writers, "this is one of the things that we do well."

*Read before the New York State Conference of Charities and Corrections, Syracuse, N. Y., November 13, 1919.

For the purposes of supervising institutions, the Department of Health of the City of New York has instituted the Division of Institutional Inspection. Prior to the time this Division was organized, matters connected with institutions were supervised by three different divisions, which made for confusion, needless duplication, and lack of initiative. To-day this Division, composed of a chief and twenty-one inspectors, is directly connected with the office of, and reports to, the Deputy Commissioner of Health.

Two Groups of Inspectors

These inspectors are divided into two groups, twelve inspectors doing work in all institutions, and nine making physical examinations of children in institutions subsidized by the city,—that is, institutions receiving pay for the board and care of children. The city is divided into approximately uniform districts and the first group of inspectors are subject to call daily from 9 a. m. to 5 p. m. in their own districts, and each in turn covers the diagnosis work of the whole borough to which he is assigned between 5 p. m. and 9 a. m.

Group 2, except when called upon to do emergency work, does all its work in institutions subsidized by the city. Inspectors make physical examinations in institutions assigned to them and make routine sanitary inspections of these institutions. Two inspectors are assigned to out-of-town work, and do exactly the same work as those in Group 2.

The Division now has under its supervision the following:

	In town	Out of town
Hospitals	133	..
Dispensaries	111	..
Diagnostic laboratories	169	..
Private sanitariums	71	..
Homes for adults	174	..
Homes for children	127	49
Day Nurseries	115	..
Homes for the aged	52	..
Homes for incurables	17	..
Reformatories and prisons	25	1
Miscellaneous	1	..
	995	50

The functions of this division include: (1) diagnosis in institutions; (2) sanitary inspections in institutions; (3) special examinations, administration of sera, etc.; and (4) physical examinations in institutions.

Functions of the Inspection

The first and foremost function, diagnosis in institutions, which is ever immediately urgent in character, is performed in all of the institutions

except those outside of New York City. The necessity of accurate and rapid diagnosis, the securing of proper isolation and quarantine, the removal of certain cases to appropriate city hospitals, the proper discharge from quarantine of cases of communicable diseases, and the investigation of cases of abortion and puerperal sepsis, is recognized by everyone.

Sanitary Surveys Important

The second function, which is an important one and which is also performed regularly in all of these institutions within as well as without the city limits, is that of sanitary inspection. The following guide devised by the Chief of the Division of Institutional Inspection is followed by the medical inspectors in conducting their sanitary investigations. It will be seen that sanitary surveys made under this guide are most comprehensive and elaborate, and that it has been of the utmost value as a matter of record.

Name of Institution.

Address of Institution.

Character.

Grounds.—A short description of the grounds as regards extent and character of the surface (grass, dirt, cement), its drainage; general cleanliness.

Buildings.—Location as to grounds; character of construction of the building or buildings; and general condition from outside appearances.

Fire Prevention.—Fire escape, chemical fire extinguishers; fire pails (whether containing sand or water); fire alarm system; water hydrants outside of buildings to be used for fire hose connection; fire drills.

Plumbing.—Nature and adequacy of the plumbing.—it must be open; the number of baths, both tub and shower, as compared with the number of inmates who are designated to use them; the number of toilets, with their location, and the proportion of toilets to the number of inmates who are required to use them. Washrooms, bathrooms, and toilet rooms must have impervious floors, with no leaks.

Ventilation.—Nature and adequacy; natural or artificial.

Heat.—Character and sufficiency of (a) steam;

DIVISION OF INSTITUTION INSPECTION
BUREAU OF GENERAL ADMINISTRATION

REPORT FOR ENDING

INSTITUTIONS

PRIMARY EXAMINATIONS

BOROUGH	Children Examined	Normal	Defective	Total Defects	Defective Vision 1	Defective Hearing 2	Defective Teeth—Primary 3	Defective Teeth—Permanent 3	Defective Nasal Breathing 4	Hypertrophied Tonsils 5	Defective Nutrition 6	Cardiac Disease 7	Pulmonary Disease 8	Orthopedic Defects 9	Nervous Diseases 10
MANHATTAN															
THE BRONX															
BROOKLYN															
QUEENS															
RICHMOND															
TOTAL															
OUTSIDE OF NEW YORK CITY															
GRAND TOTAL															

RE EXAMINATIONS

BOROUGH	Defective Children Examined	Total Defects	DEFECTIVE CHILDREN Cured O K	Improved +	Unimproved −		Defective Vision 1	Defective Hearing 2	Defective Teeth—Primary 3	Defective Teeth—Permanent 3	Defective Nasal Breathing 4	Hypertrophied Tonsils 5	Defective Nutrition 6	Cardiac Disease 7	Pulmonary Disease 8	Orthopedic Defects 9	Nervous Diseases 10	Institution Permits in Force	Monthly Sanitary Inspections	Special Inspections	Medical Visits	Special Reports Received	Teeth Only	Teeth In Combination
MANHATTAN						O K																		
						+																		
						−																		
THE BRONX						O K																		
						+																		
						−																		
BROOKLYN						O K																		
						+																		
						−																		
QUEENS						O K																		
						+																		
						−																		
RICHMOND						O K																		
						+																		
						−																		
TOTAL						O K																		
						+																		
						−																		
OUTSIDE OF NEW YORK CITY						O K																		
						+																		
						−																		
GRAND TOTAL						O K																		
						+																		
						−																		

Average time for 1 inspector for 1 day

hours minutes

Chief, Division of Institution Inspection

Fig. 1. Chart used for analyzing physical examinations. The original is 13½ by 14⅜ inches and has space for reports of the primary examinations and also for re-examinations.

(b) hot air; (c) hot water; (d) gas stoves; and (e) coal stoves.

Light.—Nature and adequacy; natural or artificial; (a) gas; (b) electricity; (c) lamps; or (d) candles.

Adequacy of Equipment

Dormitories.—Location and general description, giving the number of cubic feet of air space in each, the number of beds, and whether two feet apart or not. Six hundred cubic feet of air space to be allowed for each bed, as required by Section 313 of the Public Health Law. If a less number of cubic feet of air space is allowed, the reason for such must be given, as for example, exceptional ventilation.

Beds.—Character of the beds—whether metal or wood; whether single or otherwise, and whether more than one occupant. Springs, whether ordinary or woven. Mattresses, whether hair, felt, or straw; whether protected by rubber sheeting.

Bed Clothing.—Character and frequency of change; adequacy and seasonability; nature of night clothing of inmates.

Sitting Rooms.—Furnishings and conveniences.

Dining Rooms.—Proper light and ventilation; cleanliness. Are the rooms screened? Character of the seats. Have the chairs or benches backs upon them? The character of the dishes,—whether crockery, enameled iron, etc. Have the tables table-cloths? If so, how often are they changed? Are individual napkins used? If so, how often are they changed? Are the dishes and eating utensils clean? Are individual drinking cups or glasses provided? Are food handlers provided with food handlers' certificates?

The Kitchen Equipment

Kitchen.—Is it fully and properly equipped? Are tables zinc covered? Are they in good repair?

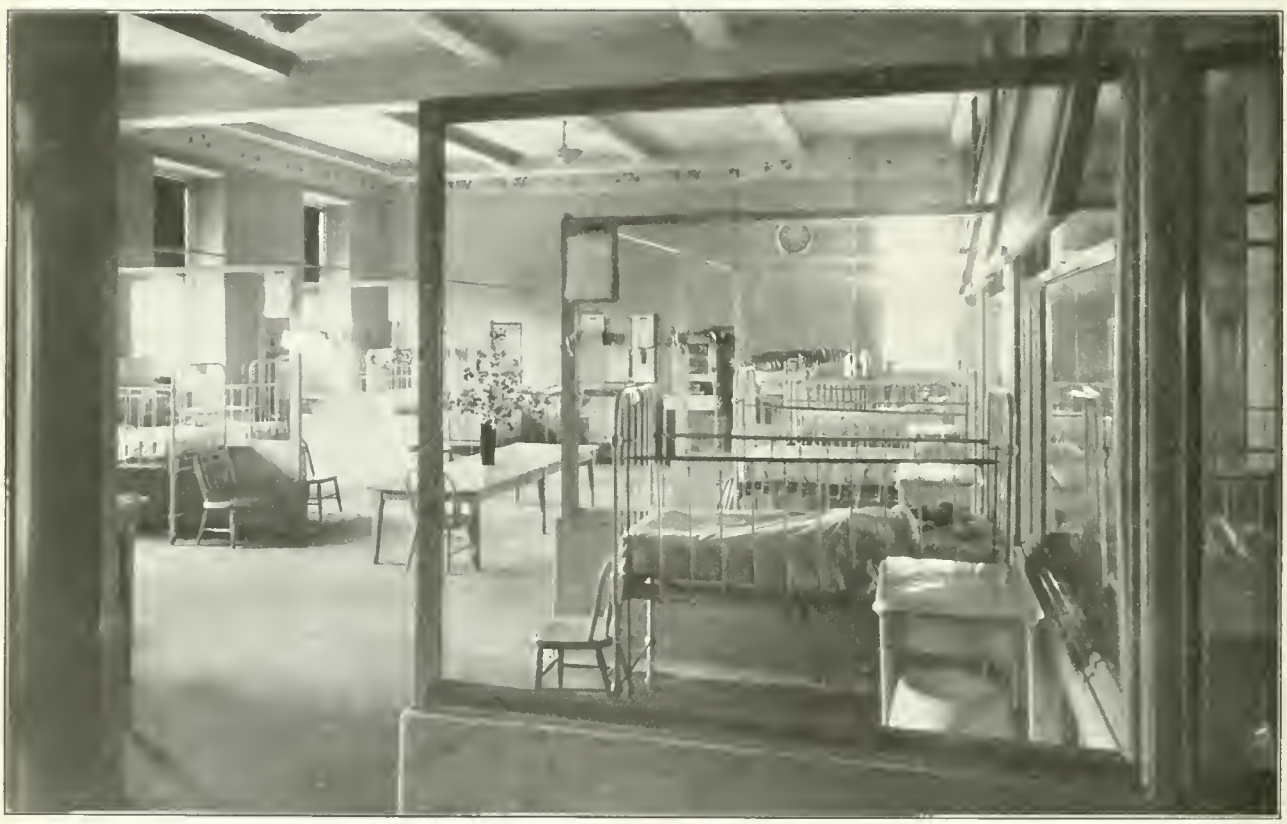


Fig. 2. There is no lack of comfort or amusement for these "kiddies" e en though they are inmates of an institution. One function of the Department of Health in New York is to see that all child caring institutions are kept up to a high standard of efficiency.

Are the utensils clean; if copper or brass, are they thoroughly clean and free from verdigris? Is a common roller towel in use? Is the room properly screened in warm weather? Are fresh vegetables used when procurable? What is the general character of the food as to its quality?

The Handling of Supplies

Refrigeration.—Is the refrigerating plant of proper size? What is the character of the refrigeration? Are separate compartments provided in refrigerators for (1) milk, butter, and eggs; (2) meats; and (3) fresh vegetables?

What grade, or grades of milk are used? Is the milk for drinking Grade A or B? Is Grade C milk used for cooking?

Garbage.—How is the garbage disposed of? Are garbage cans properly covered? Is an effort made to prevent the breeding of flies in and about the kitchen and grounds?

Storeroom.—General description.

Drinking water.—Nature of; how furnished, by drinking fountains or taps with cups? Are individual cups or glasses furnished? Is the water wholesome?

Classrooms.—Kind of light, heat, and ventilation. The relationship of the light to the desks and to the blackboards; general cleanliness of the rooms.

Playrooms.—Conditions as to light, heat, ventilation, cleanliness, water supply, and toilet and washing facilities.

Children.—Their clothing. Is the clothing seasonable and of proper amount? The cleanliness of their bodies.

Bathing.—How often bathed and how? Shower or tubs? Is more than one child bathed in the same tub of water without water being changed? Are individual towels, wash rags, tooth brushes, tooth powder, combs, soap, and sponges provided? What method is used to preserve their individuality? Are fine combs disinfected after use? Are the boys allowed to use hair brushes? Is liquid soap used? Is any effort made to teach oral hygiene?

Matters of General Sanitation

General.—Is the institution supplied with a permit? This is necessary where the inmates are sixteen years or under. Are dormitory placards posted in each and every dormitory, and is the permit exceeded.

Inmates.—Between what ages?

Census.—Male and female.

Fig. 3. Fragrant blossoms give this ward a cheerful "homey" atmosphere, and the chairs were especially designed to fit the small occupants.

Attending physicians.—Does the name of the attending physician appear in a conspicuous place in the hall?

Cleaning and sweeping.—How often is this done? No dry sweeping is permitted.

Hospital facilities.—Hospital,—how many beds? Infirmary,—how many beds? Quarantine room or rooms,—how many beds? Isolation room or rooms,—how many beds? Physicians and other attendants,—how often do they visit the institution? Nurses, hospital equipment, and drugs: Is the medicine closet kept locked when not in use? Are records kept of everything done in the

hospital and dispensary? What is the nature of the records kept?

Sample menus.

Sewage.—Does it empty into the river? Is the sewer connected with cesspool or disposal system? Condition of roof and rain leaders? Is there a stable on the premises? Possible sources of nuisance in the vicinity,—smoke, offensive trades, stagnant or undrained areas?

Laundry.—How is machinery run? Equipment. Engine room. Boilers,—high or low pressure.

Staff.—Educational; help.

Recreation.—Where and how much?

Sleep.—Hours of going to bed and arising?

Recommendations.

Statement of authorities.

A third function is also performed in all institutions, no matter what the type: namely, the administration of sera, and vaccines; the application of the Schick test; the collection of cultures, smears, and blood for laboratory examination; the medical examination of food handlers in institutions and the performance of field work for the Divisions of Epidemiology, Venereal Diseases, Tuberculosis, Industrial Hygiene, Midwives and Foundlings in so far as their work affects

WEEKLY REPORT

DIVISION OF INSTITUTION INSPECTION

BUREAU OF GENERAL ADMINISTRATION

For Week ending .19

	MANHATTAN		BRONX		BROOKLYN		QUEENS		RICHMOND		GREATER NEW YORK	
	New	Pending	New	Pending	New	Pending	New	Pending	New	Pending	New	Pending
Diphtheria												
Measles												
Scarlet Fever												
Chickenpox												
German Measles												
Mumps												
Whooping Cough												
Tuberculosis												
Typhoid Fever												
Cerebro-spinal Meningitis												
Acute Poliomyelitis												
Venereal Diseases												
Small-pox												
Non-contagious												
TOTAL												
No. Inspectors on Duty												
Average daily time on duty												
Visits by Inspectors												
Cases removed to Department Hospitals from Institutions												
Examinations at Tombs Prison												

.....M. D.

Chief of Division.

25-2376-19-B. Form 700 V

Fig. 4. Form for weekly report of the Division of Institutional Inspection to the Bureau of General Administration. This report covers all of the most common contagious diseases.

institutions; and, finally, special invesigations under the direction of the chief diagnostician.

A fourth function of the Health Department is performed in all subsidized institutions and in non-subsidized homes for children: namely, in January, February, March, and April, and again in July, August, September, and October the complete physical examination of the inmates is

made, under ten headings: (1) vision; (2) hearing; (3) defective teeth,—whether primary or permanent; (4) nasal breathing; (5) enlarged tonsils; (6) defective nutrition; (7) cardiac disease; (8) pulmonary disease; (9) orthopedic defects, and (10) nervous diseases.

Borough Institution. Address .....

Name Age..... ....Date of Admission.....

	1 Exam.	Re-exam.	2 Exam.	Re-exam.	3 Exam.	Re-exam.	4 Exam.	Re-exam.
Date								
Inspector								
1. Vision OD								
OS								
2. Hearing								
3. Defective Teeth—Primary								
Defective Teeth—Permanent								
4. Defective Nasal Breathing								
5. Hypertrophied Tonsils								
6. Degree of Defective Nutrition 2 3 4								
7. Cardiac Disease Functional Organic								
8. Pulmonary								
9. Orthopaedic Defect								
10. Nervous Disease								
Skin Disease								
Scalp Disease								
Diseases of Glands								
Previous Operations								
Incurable Disease								
Remarks								

DEPARTMENT OF HEALTH—CITY OF NEW YORK BUREAU OF GENERAL ADM DIVISION OF INSTITUTIONAL INSPECTION

25 1M3 18-R Form 22 B

Fig. 5. Blank used in reporting physical examinations and numerous re-examinations. The reverse side, Figure 6, gives the average height in inches and weight in pounds of boys and girls.

Re-examinations of those found with defects in order to determine whether or not defective conditions have been remedied are performed each year in May and June, and again in November and December.

We may now consider the detailed supervision exercised in the various types of institutions:

The Supervision of Hospitals

The extent of hospital supervision by the local Department of Health depends upon the organization of the institution. Hospitals organized under the membership corporation laws, being philanthropic in purpose, are under the direct jurisdiction of the State Board of Charities so far as their organized maintenance and conduct are concerned. We do, however, perform regular sanitary inspections and, on call, representatives of the Health Department respond for purposes of diagnosis of communicable diseases; for the enforcement of isolation and quarantine; the removal of appropriate contagious and infectious cases to special hospitals, and for the proper discharge of all patients with communicable diseases.

Hospitals organized under the business corporation laws, so-called private hospitals, are entirely under the jurisdiction of the Health Department and the complete procedure in these cases is as follows:

First, approval of site must be obtained from the Board of Health. In making application the following points are considered by the Board: (1) the necessity for the hospital in the particular locality under consideration; (2) the character of the work to be performed. If maternity cases are accepted, this must be specially mentioned; (3) the financial responsibility of the owners and their capabilities for efficient management; (4) the names and addresses of those who will perform work at the institution; and (5) it is desirable also to detail the fact that there will be no objections on the part of neighboring property owners and residents.

If the Board of Health gives its approval of site, the next step in procedure is to obtain from the Bureau of Buildings, a certificate of occupancy for hospital purposes. Next, we must be in possession of a certificate from the Bureau of Fire

Date	Age	Height	Weight	Remarks

AVERAGE HEIGHT AND WEIGHT

	(Height—Inches)		(Weight—Pounds)	
	Boys	Girls	Boys	Girls
2	32 5	32 5	26 5	26 5
3	35 0	35 0	31 2	30 0
4	38 0	38 0	35 0	34 0
5	41 7	41 4	41 2	39 8
6	44 1	43 6	45 1	43 8
7	46 2	45 9	49 5	48 0
8	48 2	48 0	54 5	52 9
9	50 1	49 6	60 0	57 5
10	52 2	51 8	66 6	64 1
11	54 0	53 8	72 4	70 3
12	55 8	57 1	79 8	81 4
13	58 2	58 7	88 3	91 2
14	61 0	60 3	99 3	100 3
15	63 0	61 4	110 8	108 4
16	65 6	61 7	128 7	113 0

REMARKS

Fig. 6. Reverse side of the blank used in reporting physical examinations, with tabulations of average height and weight and space for making records. The front of the card is illustrated in Figure 5.

Prevention of the Fire Department stating that there are no violations, so far as this city department is concerned, pending against the premises. In the interim, an application filled out on an official blank must be presented.

The supervision of private sanatoriums involves the same procedure as with hospitals organized under the business corporation laws.

Finally, when these requirements have been satisfactorily met, a complete sanitary survey of the premises is made by a duly accredited representative of the Division of Institutional Inspection and, if his report is favorable, a recommendation is made that a permit be granted.

With this type of hospital, the routine work is the same as with the first mentioned class, namely, the regular sanitary inspection of the building or buildings, and the diagnosis, sanitary control, and proper discharge of all communicable disease cases. The sanitary inspections the same as in other hospitals. Diagnosis is made and removal ordered to appropriate hospitals of cases of communicable disease.

Every laboratory in New York City offering facilities for the diagnosis of communicable diseases must be in possession of a permit issued therefor by the Board of Health. On the receipt of an official application for such a permit, a medical inspector is detailed to examine: (1) The equipment, minimum requirements for which have been determined upon, to see that the laboratory is possessed of facilities to make diagnosis of disease and conditions specified in the application, and for (2) regular and systematic sanitary investigations. Where these homes receive city money, the inmates are regularly given physical examinations and those with physical defects re-examined. Sanitary surveys are also performed. If they receive no city support, no physical examinations are ordinarily conducted.

Perhaps nowhere in the world are homes for children, the so-called child caring institutions, so carefully and conscientiously supervised as they are in New York City. The safeguards placed about children in these homes by the Health Department are

DAILY REPORT 191 OF M. D., MEDICAL INSPECTOR

DISTRICT BORDUGH

DISEASE	NAME	NAME OF INSTITUTION AND ADDRESS	HOUR VISITED	LOCATION OF QUARANTINE. NATURE OF INSPECTIONS. REMARKS

DEPARTMENT OF HEALTH, THE CITY OF NEW YORK, DIVISION OF INSTITUTION INSPECTION 26-1281-15-B, Form 93A-1916

Fig. 7. The inspector's daily report card gives the name and location of the institution, names of patients, the time of his visit, and the nature of his inspection. The reverse side is illustrated in Figure 8.

DISEASE	NAME	NAME OF INSTITUTION AND ADDRESS	HOUR VISITED	LOCATION OF QUARANTINE. NATURE OF INSPECTIONS. REMARKS

THIS IS TO CERTIFY THAT I HAVE PERFORMED THE WORK DESCRIBED ON THIS REPORT, ON THIS DATE, AND AT THE TIME INDICATED

TOTAL TIME ON DUTY

(INSPECTOR)

ASSIGNMENTS				WORK PERFORMED										VISITS TO CASES										
For Diagnosis	For Removal to Hospital	Complaints etc.	Re-Visits	Diphtheria Immunizations	Diphtheria Cultures	Schick Tests	Typhoid Immunizations	Blood for Wassermann	Vaccinations	Sanitary Inspections	Medical Examinations	Institutions Visited		Diphtheria	Scarlet Fever	Measles	Typhoid Fever	Tuberculosis	Cerebro-Spinal Meningitis	Poliomyelitis	Venereal Diseases	Miscellaneous	Total Visits	

Fig. 8. Reverse side of the inspector's daily report card shown in Figure 7. This card bears certificate of the inspector as well as the assignments made, the kind of work performed, and the type of cases visited.

most comprehensive, and it devolves upon the Division of Institutional Inspection not only to carry out the policy of the various city departments, particularly that of the Department of Health, but from time to time to inaugurate progressive measures, looking to the further betterment of the lives of the inmates. Constructive criticism is indulged in by duly authorized medical inspectors on the occasion of their many visits for the purpose of performing their routine duties.

The Sanitary Code reads as follows: "Board and care of children regulated. No person other than a superintendent of the poor, a superintendent of almshouses, or an institution duly incorporated for the purpose, shall receive, board, or keep, except under legal commitment, any nursing child, or any child under the age of twelve years who is not a relative, pupil, or ward, or an apprentice of such person, without a permit therefor issued by the Board of Health or otherwise than in accordance with the terms of said permit and with the regulations of said Board (S. C. 197)."

Institutions of this character incorporated for the purpose or maintained for the care of children under legal commitment, need no permit from the Health Department except where less than 600 cubic feet of air space per child is allowed. Under these circumstances, the State Board of Charities authorizes the local Board of Health, in view of unusual ventilation, to issue permits for dormitories in which there are less than 600 cubic feet of air space per child. Section 482, Penal Law, State of New York, provides that a person who (1) wilfully omits without lawful excuse to perform a duty by law imposed upon him to furnish food, clothing, shelter, or medical attendance to a minor, or to make such payment toward its maintenance as may have been required by the order of a court or magistrate when such minor has been committed to an institution; or (2) not being a superintendent of the poor, or a superintendent of almshouses, or an institution duly incorporated for the purpose, without having first obtained a license in writing so to do from the board of health of the city or town wherein such females or children are received, boarded, or kept, erects, conducts, establishes, or maintains any maternity hospital, lying-in asylum where females may be received, cared for, or treated during pregnancy, or during or after delivery; or receives, boards, or keeps any nursing children, or any children under the age of twelve years not his relatives, apprentices, pupils, or wards without legal commitment, is guilty of a misdemeanor.

Prior to the issuance of such permit, we insist upon the possession of a certificate of occupancy from the Bureau of Buildings and a certificate from the Bureau of Fire Prevention of the Fire Department to the effect that there are no violations, in so far as this latter Department is concerned, pending against the premises and that the building or buildings are suitable and safe for the purposes to which it or they are to be put.

Applications for these permits are made on official blanks furnished gratuitously by the Department.

Day Nurseries

The Sanitary Code defines a day nursery as a place where more than three children are received, kept, and cared for during the day time. We have under our jurisdiction at the present time, 115 day nurseries.

In order to conduct a day nursery, it is required that a certificate of occupancy be obtained from the Bureau of Buildings and a certificate be obtained from the Bureau of Fire Prevention stating that there are no violations pending against the premises.

DATE _____
INSTITUTION _____
ADDRESS _____
BOROUGH _____
ARR. _____ DEP. _____ TOTAL TIME _____

THIS IS TO CERTIFY THAT I HAVE PERFORMED THE WORK DESCRIBED ON THIS REPORT, ON THIS DATE AND AT THE TIME INDICATED.

_____ INSPECTOR.

	Defects: Curable	Defects: Incurable		Re-examination: Previous Defects	Re-examination: Present condition O. K.	Re-examination: Present condition +	Re-examination: Present condition −
Children examined			1 Defective Vision				
normal			2 Defective Hearing				
defective			3 Defective Teeth Primary				
			Defective Teeth Permanent				
			4 Defective Nasal Breathing				
			5 Hypertrophied Tonsils				
			6 Defective Nutrition				
			7 Cardiac Disease				
			8 Pulmonary Disease				
			9 Orthopedic Defects				
			10 Nervous Diseases				

Children
Re-examined _____
cured _____
improved _____
unimproved _____

Teeth in combination
Cases examined _____
cured _____
improved _____
unimproved _____

DEPARTMENT OF HEALTH—CITY OF NEW YORK
MEDICAL INSPECTOR'S DAILY REPORT
25-1094-18-B, Form 130 K

BUREAU OF CHILD HYGIENE
DIV OF INSTITUTIONS AND CHILD CARING AGENCIES

Fig. 9. The medical inspector makes a daily report of re-examinations on the above card.

An application must be completed and signed by the persons proposing to conduct a day nursery and a sanitary inspection must be made by one of the inspectors of the Division of Institutional Inspection. This report includes the measurement of the rooms. The Sanitary Code provides for a minimum of 200 cubic feet of air space for each child. These reports being favorable, the papers governing the case are forwarded to the Board of Health with a recommendation that a permit be granted. The permit states the maximum number of children allowed.

Monthly Inspections at Nurseries

A routine sanitary inspection is made of all the day nurseries at least once a month. Inspectors at this time report on the sanitary conditions found and also on the conduct of the nursery by

67 K—1913 22 .75, '18, 600 (F)

To the Board of Health of the Department of Health of The City of New York:

The undersigned hereby applies for a permit to keep beds in dormitories, in situated at

Signed,

I visited and examined the above-mentioned premises, and have found the conditions to be as follows:

ROOMS		SIZE OF ROOMS				VENTILATION			NUMBER OF BEDS ALLOWED
Floor	Room No.	Length	Width	Height	Cubic Feet	No. of Windows	Location of Windows	Other Means	

M. D.
Medical Inspector.

Dated, , 191

Fig. 10. Form which must be filled out before permission will be granted to open a child-caring institution. The medical inspector's report of conditions in the premises described must also be included.

the day nursery's own physician and the matron of the institution. The records of the day nursery must show that child was inspected on admission and thereafter twice a month by the physician attached to the nursery, the examinations to be at least two weeks apart.

In case any contagious disease is found the child must be put into the isolation room, as is required, and the Department of Health must be notified at once.

Standards of Nursery Hygiene

Rooms of all day nurseries must be above the street level unless there is a cellar underneath the room so occupied. Provisions are made regulating the cleanliness, ventilation, light, heat, and care of food, including care of bottles and nipples used, outer garments, and arrangement of the beds or cribs so that there shall be a space of two feet, except where the head or sides of the crib may touch the wall; the use of wire springs, the use of blankets over the springs instead of mattresses for the sake of cleanliness. The use of common wash cloths, towels, combs, or brushes is prohibited. Special attention is paid to the care of diapers, and the nursery is required under certain conditions to provide over-aprons.

The matron is required to inquire daily of the mother or other person bringing the child as to whether or not any sickness exists in the child's home and if any suspicion is aroused as to the possibility of such sickness being of an infectious

nature, the child is excluded from the day nursery, the Health Department notified and the exclusion continues until a certificate of the Department of Health is furnished to the nursery to the effect that the premises referred to are free from infectious disease.

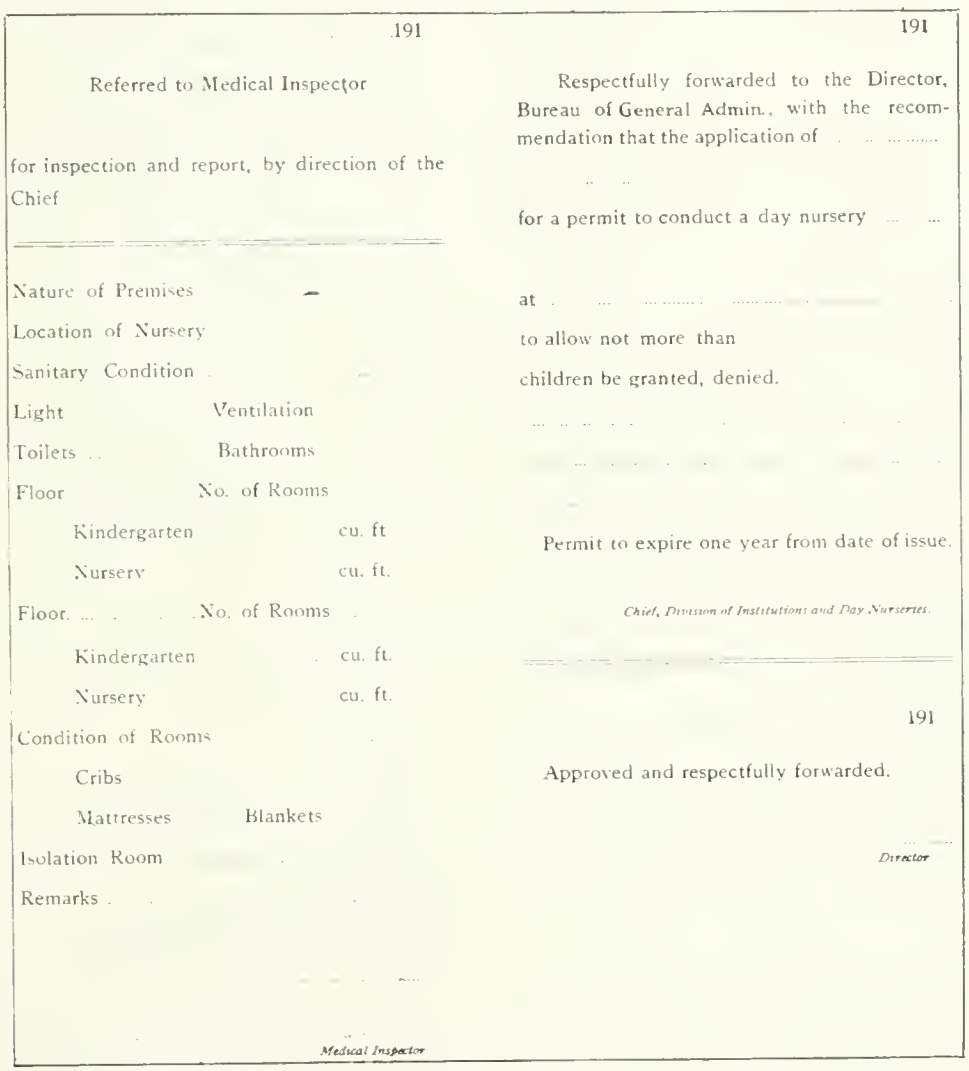
Homes for the Aged

There are fifty-two homes for the aged under supervision. The procedure is the same as in the case of homes for adults.

We have under us seventeen homes for incurables. The procedure followed is for the most part the same as in other homes for children, as the majority of these homes are for children. Where the inmates of the institutions are adults, the procedure is the same as in other homes for adults.

Of reformatories and prisons there are twenty-five in town and one out of town. By arrangement with the Commissioner of Corrections, the Division of Institutional Inspection of the Health Department makes regular routine sanitary inspections at these institutions. They include not only reformatories and prisons of all sizes, but also the local minor places of detention attached to the various district police courts. The institutions of this type which house their prisoners for periods of some length, as a routine procedure, have their inmates regularly examined physically, by our inspectors.

It will be seen by the foregoing how extremely important this work is considered by this Depart-



.191

Referred to Medical Inspector

for inspection and report, by direction of the Chief

Nature of Premises

Location of Nursery

Sanitary Condition

Light Ventilation

Toilets Bathrooms

Floor No. of Rooms

Kindergarten cu. ft

Nursery cu. ft.

Floor No. of Rooms

Kindergarten cu. ft.

Nursery cu. ft.

Condition of Rooms

Cribs

Mattresses Blankets

Isolation Room

Remarks

Medical Inspector

191

Respectfully forwarded to the Director, Bureau of General Admin., with the recommendation that the application of

for a permit to conduct a day nursery

at

to allow not more than

children be granted, denied.

Permit to expire one year from date of issue.

Chief, Division of Institutions and Day Nurseries.

191

Approved and respectfully forwarded.

Director

Fig. 11. A portion of the outer cover of application blank for permit to conduct a day nursery, and recommendations of the medical inspector detailed to make investigation.

ment. Nothing in its inspection is considered too small to overlook, and the inspectors in making their visits to these various institutions are not only supposed to consider the exact rules and regulations laid down by the Department for their guidance, but exercise good judgment from the knowledge that they have acquired in the routine

of their daily practice from the observation of other institutions, and even suggest ways, means, and changes that add exceedingly to the value of the work that these institutions are called upon to perform.

During the existence of epidemics, such as influenza, the supervision of all institutions, especially those of child caring institutions, has taught a lesson of great value. It was interesting to note during the recent great epidemic that in those institutions from which the public were excluded rigorously the epidemic gained little foothold and its ravages were comparatively light. This was gratifying, and it was also noted in marked contrast with this, that those in households, where every care could be given, often seemed especially subject to this disease.

This was also observed during the epidemic of poliomyelitis. It proves that if an efficient quarantine could be instituted and maintained all infectious disease would be excluded, the lives of the inmates safeguarded, and it would materially assist in stamping out these scourges.

In regard to institutions devoted to child-caring, we find our greatest contentment in knowing the remarkably good results that are achieved by following out the wise regulations of this Department and of allied departments of the state and city. It is now well recognized, and this is as it should be, that all the care that can be given to these little dependents is worthy of our utmost consideration, and it is a pleasure to note the fact that money expended in the welfare of these little ones is, at the present time, not begrudged by any one. All officials of the state and city recognize that money so spent is well spent.

To observe the well ordered and well conducted child caring institution with its up to date fixtures and appurtenances makes one feel that at least we recognize the value of these future citizens of our state and city, and that time and thought spent in this connection could not be spent in a better cause.

The Department of Health of the City of New York has given much time and attention to the supervision of all institutions, but particularly to the child caring institutions in which it recognizes the value of frequent and painstaking inspection.

The Division of Institutional Inspection, with its well trained staff, is always on the alert for anything that will increase the value of these institutions, and is ready and willing on all occasions to impart its knowledge for the betterment of existing conditions.

It is believed that the officials of the city of New York, well recognizing the fact that these institutions are worthy of all the care that can be given to them, will, in the future as they have in the past, continue to supervise with an anxious eye all the institutions under their care, and that those in power in the city administration will not be niggardly in their appropriations for the furthering of one of the most important activities of the Department of Health, and therefore will not stint us when the appropriations are made covering this work, which is of such great magnitude.

LAW FOR THE DOCTOR

By LESLIE CHILDS, Attorney-at-Law, Indianapolis, Ind.*

Right of Physician Selling Location and Practice To Resume Practice in Immediate Vicinity

To the professional man buying an established location and practice, the question of just what he is buying is of great importance. It is frequently the case that the intangible part of the property, usually designated as "good will," is of far greater value than the land, shop, stock in trade, or what not that is purchased. This being the case, it is of great interest to know just what amounts to a sale of the "good will" of a professional practice.

If in the contract of sale there appears a specific stipulation that forbids the seller again to engage in the practice at or near the location sold, that of course is binding. Or if there is a stipulation reciting that the "good will," of the practice is parted with, that, too, in law will prohibit the seller from again engaging in the practice at the former location, within reasonable restrictions.

But suppose that neither of the above stipulations is set out in the contract, and the seller after a time resumes his practice, to the detriment of the buyer, has the latter any remedy, and if so what? The answer is that whether or not the buyer has any recourse will depend almost entirely upon the nature of the representations made by the seller at the time of the sale. The case of Townsend *vs.* Hurst, 37 Miss. 679, is one directly in point, illustrating the application of the law on this proposition in an admirable manner, the facts being substantially as follows:

The defendant advertised his place for sale, offering to sell his land, dwelling, shop, and stock of medicines. He represented it as a good location for a physician. He stated that his reason for wishing to sell was that he was in bad health and intended to remove to Florida. He also stated that he knew his land was not worth much, but that it was for his stand as a physician and for his improvements that he asked the price. He further promised to recommend the plaintiff to his patrons.

Upon the above representations the plaintiff, a young physician, purchased the land, dwelling, stock of medicines, etc., paying one-half the purchase price when it became due, and giving his note for the balance.

After the sale the defendant removed to Florida, but returned in a few months and resumed the practice of his profession within one mile and a half of his former stand. Whereupon the plaintiff refused to pay the balance of the purchase price, filing a bill to enjoin the collection of the same, and asking for a recision of the contract on the grounds of fraud, misrepresentation, and a failure of the defendant to live up to the contract.

*The ninth of a series of articles on "Law for the Doctor" written for MODERN MEDICINE by Leslie Childs.

It should be remembered that there was no stipulation in the contract of sale forbidding the defendant again to resume the practice of medicine at or near his former stand. Neither was there any express stipulation that there had been a sale of the "good will" of the practice. In passing upon this set of facts the court said:

"Good faith and justice require that parties making representations and holding out inducements intended to influence the action of those with whom they deal in matters of contract, and upon which they are expected to rely and do rely, should be strictly held to make good such representations, and to fulfill the reasonable expectations thereby created. It is of the last importance that courts of equity should rigidly adhere to a rule so consonant with morality and common honesty. . . . The question is, did not these representations and this conduct on the part of the defendant, naturally and necessarily lead appellant (plaintiff) to believe and understand that defendant would at least not continue the practice of medicine in that immediate vicinity? Did he not understand from the representations and promises made to him that he was to have the defendant's stand and his "good will," as the main inducement to the purchase?

"The testimony leaves no doubt on this point. Was the appellant (plaintiff) deprived of the benefit he had the right to expect by the act of the defendant? This seems equally clear from the testimony. According to some authorities, by the conveyance of a shop alone, the good will passes, though not specifically named. . . . But in this case it was expressly sold as a stand for a physician, with the statement that defendant intended to remove to Florida, and with the promise to recommend appellant (plaintiff) to his patrons.

"Under such circumstances, the conduct of the defendant in returning and resuming his practice among his old patrons was such a violation of good faith, and such a fraud on appellant (plaintiff) as entitles him to the relief he seeks."

By this opinion the court in effect held that there was an implied covenant that the seller would not re-engage in the practice at his former location; and that as he did this he could not enforce the payment of the balance due on the sale, the contract of sale being rescinded.

In conclusion then it may be stated. That if the contract of sale expressly prohibits the seller from re-engaging in the practice at a given locality, for a given time, it is binding. Or if the contract expressly specifies that the sale is one in which the "good will," is transferred, this will also prevent the seller from re-engaging in the practice in a manner that would interfere with the buyer.

On the other hand if the transfer is a straight sale, whether or not the seller will be prevented from re-engaging in the practice at his former stand will depend almost entirely upon the representations and promises made and relied upon by the buyer at the time of sale. And the case reviewed above is an excellent example of representations and promises that will in themselves constitute a sale of the "good will," and thereby serve as a bar to the seller from re-engaging in the practice to the damage of the buyer.

TUSKEGEE NEGRO CONFERENCE

The Twenty-Ninth Tuskegee Negro Conference will be held on January 21 and 22 with the general subject of discussions to be "Meeting the Needs of the New Economic Conditions." The ultimate object of these conferences is to contribute something toward the fullest development of the South along all lines.

ILLNESS CHIEF CAUSE OF POVERTY

That at least half the cases of poverty are due to illness was demonstrated by the Brooklyn Bureau of Charities which made a survey during the past year. With only a narrow margin of savings, the family is quickly reduced to destitution by illness.

Y. W. C. A. HEALTH CONFERENCE

A conference of the women physicians actively engaged in work at the health centers of the Young Women's Christian Association convened in New York December 1 to 6, 1919. The "Evolution of the Health Center" was presented by Dr. Florence Meredith. Dr. Augusta Rucker, director of the health division of the Bureau of Social Education, spoke on "Health and the Modern Woman." Many such health topics as exercise and heart murmurs, individual health exercises, and topics on matters of administration and the relation of the physician to the physical director were discussed. Miss Hazel MacKaye spoke on the psychology of recreation, and "Mental Health" was presented by Dr. Eleanor Bertine. The subject material is sufficient indication of the constructive tendency of the health program which has ben outlined for the health centers of the Young Women's Christian Association.

HOSPITAL SOCIAL SERVICE QUARTERLY

In an article entitled "Medical Social Service of the Future," published in the November issue of the *Hospital Social Service Quarterly*, Dr. Charles P. Emerson quotes Sir William Osler, commenting on the patients collected in a medical dispensary, as saying: "If three out of ten of these get what they really need, we are doing well. We are not equipped to treat the other seven." To help the other seven, says Doctor Emerson, is a medico-sociological problem, and if he wishes to succeed, the doctor must associate himself with an expert in that field." He decries the use of the term "social service" in this connection, and says it would more accurately be termed "community medicine," for its chief concern is the community aspects of disease. His vision of medical social service of the future is: (1) Better therapy through partnership with expert sociology. (2) The education in the laboratory of human life of sociologists, of medical students, of nurses, of charity workers, and of patients that they may more intelligently cooperate with their doctors. (3) The provision of ways and means by which the medical service of a hospital and dispensary may be made more satisfactory to the patient, the doctor, and to the public in every possible way.

John E. Ransom contributes to the same issue a well written article on the training for hospital social service through the development of hospital community relationships.

Other articles are presented as follows: "Medical Social Diagnosis," by Imogene Poole; "Readjustments Which Training Schools are Facing," by Laura R. Logan; "Social Service Work for Syphilitic Persons," by Albert Keidel, M.D.; "The Volunteer Worker," by Charlotte F. Rosenbaum; "The Value of Occupational Therapy in the Nurse's Profession," by Charlotte Moodie, R.N.; "Social Service at the Italian Hospital," by Mrs. Lionello Perara; "The Midwife in the City," by Etelka Weiss; "Course of Instruction for Dietitians," by Katherine Fisher; "American Conference on Hospital Service," by M. A. Cannon; and "Social Service at the Illinois Training School for Nurses," by N. F. Cummings.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

THE CONTROL OF HUNGER IN HEALTH AND IN DISEASE. By Anton Julius Carlson.*

Carlson has written in this book, the results of a long series of researches by himself and associates, which have extended over a long period of time and have appeared in many numbers of the *American Journal of Physiology.*

It is recommended that those who have not the original articles available should by all means read this book, as in the book there is not only a complete review of all previous work on the physiology of gastric motility and digestion, but also a fund of new information contributed by Carlson, which constitutes the most important advance in our knowledge of gastric physiology up to the present time.

The book is written in a clear, simple, vigorous style, is well arranged, and quite well illustrated. There is also appended a very complete bibliography.

The opening chapter deals with the biological significance of hunger, and contains a discussion, quite philosophical in its nature, of hunger in unicellular animals, plants, higher animals, and also the interrelationship of hunger and appetite. This interesting chapter and the one which follows, which is devoted entirely to the theories of hunger and appetite, indicate the author's remarkable familiarity with the entire subject of the physiology of the gastro-intestinal tract. One notes with pleasure in these chapters, and also throughout the entire book, Carlson's scientific honesty, especially in his carefulness to attribute previous investigations to the individuals responsible for the work. He states simply and directly that his work began where the work of others left off. He claims no originality for his main method of investigation, but attributes it properly to Boldyreff, Cannon, and Washburn.

After Carlson's work was well started he was fortunate, as he states, in securing the services of "a second Alexis St. Martin,—a man with complete closure of the esophagus and a permanent gastric fistula of twenty years' standing." The gastric fistula was large enough to permit direct inspection of the interior of the stomach and the introduction of *ballons*, etc., for various investigations. The method of investigation most used was that of introducing into the stomach a thin-walled rubber *ballon* attached to a rubber tube, and this connected with a bromoform recording manometer. When the *ballon* is distended with air to the proper degree, contractions of the stomach are recorded through the manometer on a smoked drum. In the man with the gastric fistula, the *ballon* was introduced through the fistula. In normal individuals and patients, the *ballon* is attached to a small rubber tube and swallowed, in the same way that a Rehfuss tube is swallowed. Another method used was x-ray examinations of a bismuth coated *ballon* introduced into the stomach, thereby pictorially recording gastric motility.

The most important contribution of Carlson was definitely to prove the fact that the empty stomach is not at rest, but has a certain degree of tonic contraction which is rythmic in type. The previous work of Boldyreff and Cannon did not demonstrate this.

The author also confirmed and elaborated the observations of these last named investigators, that, when hunger occurs, there also occur strong intermittent contractions of the stomach, and that these contractions are absolutely coincident with the pangs of so-called pains of hunger. Probably the most important information for the clinician is the fact that there is a relationship between the tonic contractions of the stomach and other conditions which may affect either the stomach or the individual's general condition. Work along this line is already appearing in the current literature and it is hoped that many clinicians will see the value of Carlson's methods in studying patients with gastric disease, both before and after operation.

Carlson has confined himself practically entirely to the physiology of hunger and gastric tonicity. The field made up of pathological conditions of the stomach is still almost untouched and undoubtedly much can be learned here by these newer methods.

Especially important chapters in the book are: Sensibility of the gastric mucosa.—The nervous control of the hunger mechanism.—The chemical control of the hunger mechanism.—The characteristics of human appetite, gastric juices.—Hunger and appetite in disease.

The work which this book represents is a masterpiece of thorough, complete, scientific investigation of a more or less abstract problem. It is noteworthy, however, that one can read between the lines the realization which the author has of the important practical application of his investigations.

*University of Chicago Press, Chicago, 1916. $2.

A SERIES OF CONSECUTIVE CLINICAL DEMONSTRATIONS AND LECTURES. By Frank Smithies, M.D., Augustana Hospital, Chicago.*

This new periodical, as is indicated by its subtitle, presents a series of consecutive clinical demonstrations and lectures. The clinical demonstrations—in this issue thirteen in number—cover many aspects of the internist's field; the lectures, as, for example, those appended to the clinics on gastric syphilis, and on ulcerative enterocolitis, are based upon work which Doctor Smithies has published elsewhere. The appended descriptions of the laboratory tests used in the development of the particular case represent another feature of these clinical lectures.

(Continued on Adv. Page 22)

*Quarterly Medical Clinics, April, 1919, 1, No. 2, Medicine and Surgery Publishing Co., St. Louis.

"A Separate Bed for Each Sleeper"—Another Sensible New Year's Resolution

The reasons for changing one's habits of sleep, are as simple as they are sound. If there were no specific sanitary reasons for Metal Beds and a separate bed for each sleeper—Why do hospitals insist upon both?

There are plenty of reasons why people in ordinary health should insist upon sleeping in separate beds—epidemics, sickness, and communicable diseases only emphasize some of them.

The germs of pneumonia, diphtheria, spinal meningitis and influenza revel in close, stuffy, overheated sleeping rooms, and the old-fashioned double bed helps them in their deadly work.

During the "Flu" epidemic of 1918 nearly every newspaper cautioned against the danger of crowds. Theatres, churches, and schools were closed. Street cars and other public conveyances were operated, but their doors and windows were kept open. The big idea was to impress people with the necessity of dressing warmly, of avoiding crowds, and breathing pure, fresh air. It remained for the Army and Navy health officials, however, to stipulate how the men in their care should sleep.

Among the good health rules formulated at that time was the rule to avoid crowding. Men were urged to keep to themselves, or far enough from others so as to permit a free circulation of air.

In barracks, cantonments and transports—where crowding was almost unavoidable—it was an iron-clad rule that every soldier and sailor sleep alone, in a bed of his own. And to prevent germs from carrying from man to man, the beds or cots were arranged foot to foot, instead of in rows, head to head.

Public health officials and welfare workers are familiar with these facts. We refer to them again and again because we believe too much stress cannot be laid upon the efficiency and good-health value and importance of sound, restful sleep, and the vital part it plays in maintaining the health and efficiency of industrial workers.

Pure air in sleeping rooms is as necessary to personal efficiency as sleep, and if that sleep can be had in a modern, sanitary and noiseless Simmons Bed, so much the better.

Simmons Steel Bed equipment is the choice of up-to-date Hotels, Hospitals, Schools and Industrial Dormitories just as it is the choice of thousands of homes. Catalogs, Style Book, or helpful data on the all-important subject of sleep, will be mailed promptly upon request. Address:

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, Vice President. H. T. McCLURE, Secretary.

58 EAST WASHINGTON STREET, CHICAGO.

Telephone—Majestic 8040 and 8041.

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

58 East Washington Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

BOOKS OF THE MONTH

(Continued from Page 88)

The general plan of presentation is more or less uniform in the several clinics, consisting of a well developed history, the findings on physical examination and in the laboratory, a summary (1) of the clinical history, (2) of the clinical examination, and (3) of the clinical laboratory examinations, a discussion of the diagnostic data, and of the treatment and the results of treatment. Also, as already noted, several of the clinics are followed by a thorough handling of their outstanding features (e. g. benign pyloric stenosis, and medical treatment of gastric ulcer).

Among the conditions thus taken up in clinical form are the following: lethargic encephalitis; thrombosis of cerebral arterioles with epileptiform attacks; paroxysmal tachycardia; peptic ulcer; gastric syphilis; lead poisoning with anemia of the pernicious type; idiopathic pernicious anemis; morbus maculosus neonatorum; pyloric and common bile-duct obstruction; sigmoid diverticulitis; and chronic ulcerative enterocolitis.

One concludes the reading of a clinic with the feeling that all that could be done in the diagnosis of the case and all that could be said in the interpretation of the findings has been done and said. That we question somewhat the strength of the foundation on which the author bases some of his conclusions is not important, inasmuch as his conclusions are generally shown to be correct. We are inclined to the belief, however, that his ultra-detailed processes of diagnosis and thought appeal rather to the physician who is in a position to analyze cases as does Doctor Smithies (and, therefore, is in no great need of his methods) than to the physicians whose practice is not confined to internal medicine, and who crave brief, incisive hints along modern lines. And should it not be our purpose to reach the average reader in our clinical teaching?

One of the most interesting features of this type of publication—and it is apparently gaining in favor—is the light it throws upon our methods of teaching. The didactic, the textbook method, is being superseded more and more by the case method, whether in the class room, in the small bedside clinic, or in the form of clinical lectures, and to this change we must heartily subscribe in view of the frequent deviation of the cases from the type. The textbook still has its place but only as a book of reference.

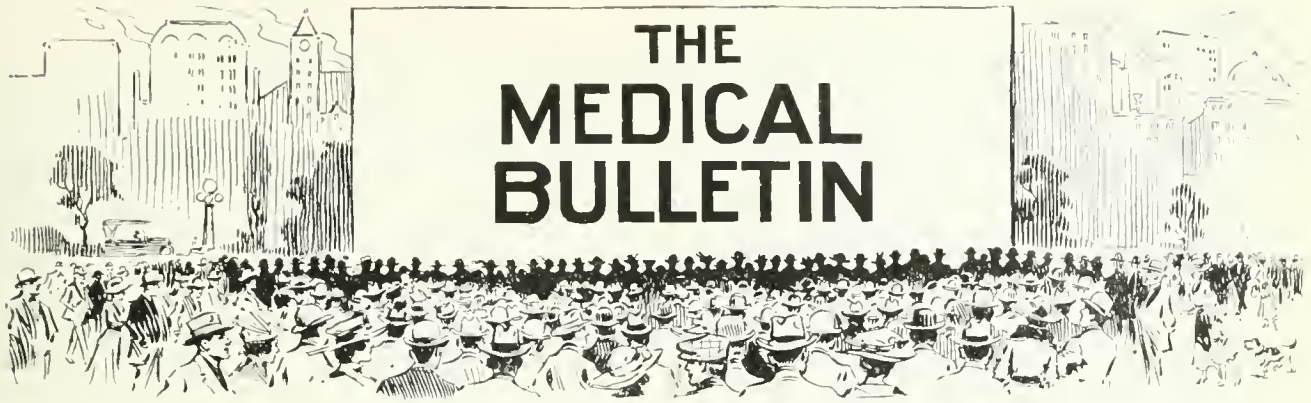
The material in these clinics is happily arranged and the author's style attractive. The numerous illustrations are excellent and together with the statistical tables add much to the value of the number. Doctor Smithies deserves praise for his versatility, thoroughness, and energy.

THE ITINERARY OF A BREAKFAST. By J. H. Kellogg, M.D., medical director of the Battle Creek Sanitarium.*

Doctor Kellogg's description of the passing of a breakfast through the food tube is written in a very entertaining manner and in popular language. It is obviously written for the layman, and for him there is much information. The intestinal tube is described as a route having ten gates and several stations through which food must travel before being used by the body. The method of procedure under normal conditions is given and some of the things which may occur to retard the progress of the food. Suggestions for overcoming these obstacles are given, and recommendations for diet.

(Continued on Adv. Page 22)

*Funk & Wagnalls Co., New York, 1919, $1.00.



Pertinent Paragraphs for Physicians. Quickly Read and Easily Digested

WHAT IS CINCHOPHEN

Cinchophen, Abbott, is Phenylcinchoninic Acid. Cinchophen, Abbott, has been accepted by the Council on Pharmacy and Chemistry of the American Medical Association and was ordered in large quantities during the war by the United States Government.

Cinchophen, Abbott, stimulates the kidneys so as to increase the amount of urine and has a selective action on the excretion of uric acid, which is increased in greater ratio than the increase in the amount of urine. Cinchophen, therefore, effects a reduction of the uric acid content of the blood.

Cinchophen, Abbott, is useful wherever it is desirable to increase the flow of urine and the excretion of uric acid. Indications for its uses are gout, rheumatism, sciatica, neuritis and gonorrheal joint disease. In gouty conditions it is generally admitted to be the remedy of greatest value.

THE SERIOUSNESS OF SLEEP

Every doctor has seen how wakeful nights wear out a patient's strength and how a few hours of sound, refreshing slumber change the patient from a nervous wreck into a cheerful, reasonable human being.

Many remedies have been used for the induction of sleep, but most of them have been superseded by Barbital, or, as it was formerly known, Veronal. This remedy is efficient, it is nearly free from depressant action, and, under normal conditions it does not induce habit formation. So important is this remedy that when German Veronal was unobtainable in this country, several American manufacturing houses were asked by the United States Government to undertake the problem of its manufacture.

The Abbott Laboratories was one of these, and, working under great difficulties, it was able to produce large quantities of it for the American government for our soldiers and sailors, and it is now manufacturing Barbital of the best quality in quantities large enough to meet the civil demands. Specify Abbott's when prescribing Barbital.

JANUARY SUGGESTIONS

Good work; good drugs, larger practice.
Better fees. Closer collections.

The ideal antiseptic for everyday use Dakin's Chlorazene.

Dr. Wm. H. Wilcox, in The Lancet, advocates the more extensive use of bile salts therapeutically. Try Bilein (Abbott) in your cases of jaundice and as an adjuvant in the treatment of Cholelithiasis

Coughs and Colds Yield to Calcidin

Are you using Bacterins? Get the Abbott Price List.

Digipoten (Abbott) is the American-made Council-passed, digitalis preparation. Try it.

Can you clean a wound with soap? Neutral Sodium Soap (Abbott) is non-irritating and does not injure the skin.

Convenient branch offices are maintained by The Abbott Laboratories in New York City, 31 E. 17th St.; Seattle, 225 Central Bldg.; San Francisco, 371 Phelan Bldg. Also agencies in Los Angeles, Calif., Toronto, Canada, and Bombay, India. Wholesale druggists and the retail trade are also stocked with Abbott specialties.

If you haven't the complete Price List of The Abbott Laboratories, send for one now, using the corner coupon below. Ask also for special bulk quotations on anying you want.

(Coupon)

The Abbott Laboratories, Dept. 27,
Chicago, Illinois.

Please send me your complete up-to-date Price List.
Also bulk quotation on.....
.....
.....
.....
Dr. .....
Address .....

The Scientific Principle That Makes the New York Study Chair Unique Is

The correspondent adjustments of the seat, the lumbar support, and the desk top, making it conveniently possible

TO FIT EACH CHAIR AND DESK TO THE INDIVIDUAL OCCUPANT ANATOMICALLY RIGHT

insuring good posture
in a sitting position

Earl Thompson
Sales Agent
New York City, N. Y.
70 Fifth Avenue Cor. 13th Street

Free Literature on Request

BOOKS OF THE MONTH

(Continued from Page 22)

Contrary to the belief of the majority of our nutrition experts, the author states that "nuts give completeness to a diet from which milk, eggs, and meat are excluded."

In his opinion the evacuation of the bowels should occur three or four times daily; if limited to once daily, constipation exists. He warns us, also, to "Beware of the x-ray tyro. There are in the United States possibly one hundred x-ray specialists whose examination of the alimentary tract may be regarded as of value and whose conclusions may be trusted as fairly reliable, but the chances are very great that our estimate is far too large."

The charts showing the food *en route* are interesting and require no technical knowledge thoroughly to comprehend them.

Both the layman and the professional will find this a book worth reading.

RECLAIMING THE MAIMED. A Handbook of Physical Therapy. By R. Tait McKenzie, M.D., Major, R.A.M.C., professor physical therapy, University of Pennsylvania.*

In this small book McKenzie gives a simple description of the physical-therapeutical means by which many of the war injured have been rehabilitated and have been sent back into active life with bodies capable of fighting in the struggle for existence. The writer describes the usual galvanic and faradic apparatus and their use. He devotes a chapter to hydrotherapy; radiant heat and light lamps are dealt with, and their uses are briefly indicated. The mechanical devices used in several large Canadian hospitals are described and also a system of gymnastic exercises. "Aimless rubbing is as useless as waving a palm leaf fan if the operator be weak and timid, but it has additional possibilities of doing much harm if the operator, besides being ignorant, is rough and strong." With this introduction the subject of massage is opened, but the reader notes that purposeful, well planned manipulations have a very important place. The last few pages are devoted to methods of masking unsightly repulsive facial deformities.

PSYCHOSES OF THE WAR, Including Neurasthenia and Shell Shock. By H. C. Marr, Lt. Col., R.A.M.C., (Temp.), doctor of medicine, Fellow of the Royal Faculty of Physicians and Surgeons, Glasgow; neurological consultant to the Scottish Command; H. M. Commissioner of Control for Scotland; formerly specialist in nervous diseases of the troops in Malta (1915-1916); physician superintendent of Glasgow District Mental Hospital, Woodilee, Lenzie; and Mackintosh Lecturer in Psychological Medicine, St. Mungo's College Glasgow.†

"The psychoses of the war have revealed no new mental trait, but the war itself has rendered many who were unable to play a useful part in the battle of life less useful, and in many cases unable to do so. After the war there will be many problems, and of these problems not the least will be how to make fit those who are no longer able to return to their original duties, and to consider under what circumstances their usefulness and well being can be effected." In the solution of these problems this book by Lt. Col. Marr will surely be of considerable help, not only to the psychiatrist but to the general practitioner who will meet these cases in his practice.

The introduction to the book deals with the relationship

(Continued on Adv. Page 26)

*The Macmillan Co., New York, 1918, $2.
†Oxford University Press, 1919, $6.50.

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment. Literature and samples from

RIEDEL & CO.
326 Broadway
New York City

FOR DIET CONTROL IN INFANT FEEDING

The choice of these dependable products affords the physician convenient means of selecting food mixtures suited to the individual requirements of individual cases.

MEAD'S DEXTRI-MALTOSE NO. 1

(With Sodium Chloride 2%)

For general use in infant feeding. Especially indicated in infants recovering from diarrhoea, infants with feeble powers of digestion who have tendencies to diarrhoea. Valuable as an addition to Protein Milk.

MEAD'S DRY MALT SOUP STOCK

For difficult feeding cases. Indicated in marasmus, weight disturbance (failure to gain), infants afflicted with recurrent diarrhoea from intestinal indigestion, and those cases occasionally met which do not do well on milk, water and sugar mixtures.

MEAD'S DEXTRI-MALTOSE NO. 3

(With Potassium Carbonate 2%)

For use in constipation, when boiled feedings are used, or where the addition of potassium to the infant's diet is indicated.

Full information regarding these products furnished on request.

MEAD JOHNSON & CO. **Evansville, Ind.**

Concentrated Nourishment With Slight Digestion Tax

Borden's Malted Milk is prepared by an exclusive, improved process whereby malt ferments acting on the proteins convert them to partial peptones.

This partial predigestion lessens the strain on the gastro-intestinal tract and renders Borden's Malted Milk, with its concentrated nourishment, a safe and valuable ingredient of diet throughout typhoid fever, or whenever digestion and assimilation are subnormal.

If taken piping hot before retiring it induces restful and refreshing sleep.

Samples, analysis and literature on request.

THE BORDEN COMPANY
Established 1857
Borden Building New York

Borden's
THE IMPROVED
MALTED MILK

BOOKS OF THE MONTH

(Continued from Page 24)

of normal to abnormal mental processes with the anatomy and physiology of cerebration and with the means of observation of mental phenomena. In the introduction one finds the classification of mental affections: Neurasthenia, psychasthenia, mental deficiency (infantile), mental enfeeblement (adolescent), toxic psychoses, and organic psychoses (cerebropathies). This classification is further subdivided until practically all of the mental affections can be found. Neurasthenia, shell shock, hysteria, which Marr terms neurasthenia of toxic origin, psychasthenia, and all the other divisions of the general classification above given are discussed.

The appendix contains a chapter on the nature and method of examination of the cerebral spinal fluid, and special reference is made to the colloidal gold test, while at the end of the book there is a very interesting series of charts for mental "case taking." The book is well illustrated and well printed throughout, and on the whole furnishes a most useful and instructive collection of knowledge on the important matter it covers.

ESSENTIALS OF SURGERY. A Textbook of Surgery for Student and Graduate Nurses and for Those Interested in the Care of the Sick. By Archibald Leete MacDonald, M.D., the Johns Hopkins University; formerly in charge of the department of anatomy, University of North Dakota; lecturer on surgery, Nurses Training School, St. Luke's Hospital, Duluth, Minn.*

The book covers the principles of surgery in an elementary way. The matter is presented simply. Only general statements are made concerning etiology, pathology, and the natural course of the disease. The treatment is briefly indicated. Demonstrations for class work are described at the end of every chapter. These demonstrations are very good and will prove helpful to the lecturer.

The book is not complete enough in detail for a study book for class work, but it is an excellent guide book for the teacher.

THE SCIENCE OF EATING. How to Insure Stamina, Endurance, Vigor, Strength, and Health in Infancy, Youth, and Age. By Alfred W. McCann. Author of "Thirty-Cent Bread," "Starving America," etc.†

"In the preface of this book the author states that in his opinion the true conditions in regard to foods will not be made public through the press, neither will they be remedied by legislation; therefore, through the public schools the American children should be taught "the relationship of foodless food to sickness and death, the relationship of natural food to health and life." The most prevalent and widely recognized evils in food production, dietary habits, and principles of nutrition are discussed in a very positive manner, though the author's ideas do not always accord with those who are accepted as our best authorities in nutrition.

To put this book into the hands of school children would be a great injustice, not only because of the highly dramatic way in which the text is written, but because of the content of some of the statements. The following selected at random, is on page 33: "New blood arrests disease, walls up tuberculous lesions, and the patient, if not in the very shadow of death, is reclaimed. New red blood depends upon food, on food alone." This is placing

(Continued on Adv. Page 28)

*J. B. Lippincott Company, Philadelphia, 1919, $2.
†George H. Doran Co., New York, 1919, $2.

—cover the Entire Field

The publications of The Modern Hospital Publishing Company cover the entire field of administrative medicine. Their text matter appeals to every individual engaged in health and welfare work and administrative medicine and to those executives responsible for the purchase of equipment and supplies for the care of the sick and the maintenance of the health of the nation.

THE MODERN HOSPITAL is a generously illustrated monthly magazine devoted to the building, equipment and administration of hospitals, sanatoriums and allied institutions and to their medical, surgical and nursing service. THE MODERN HOSPITAL averages over two hundred and fifty pages each month and reaches over 90 per cent of the total bed capacity of the entire field.

MODERN MEDICINE is a well illustrated monthly magazine devoted to medical and health progress for physicians and others interested in administrative, industrial and social health problems.

The Modern Hospital YEAR BOOK is a Buyers' Reference Book of supplies and equipment for hospitals and institutions, including an annual review of hospital progress and interesting discussions of institutional buying problems. This valuable book is loaned without charge to hospital executives and others responsible for the purchase of hospital equipment and supplies. The 1919 edition consists of nearly eight hundred pages and includes the condensed catalogs of over two hundred firms serving the hospital field.

A sample copy of either of our magazines will be gladly sent upon request. A copy of the 1919 YEAR BOOK will be loaned to any institution or individual entitled to it.

The Modern Hospital Publishing Company, Inc.
58 E. Washington St. Chicago

She Serves It Every Day

As guardians of the public health nurse and physician are constantly confronting the problem of securing a satisfactory milk supply.

For this very reason more and more of them are turning to Carnation Milk as the solution of the pure milk problem.

Carnation Milk is just cows' milk evaporated to the consistency of cream, then sterilized.

All of the original food properties are retained and absolute purity assured.

Write for special Recipe Booklet.

CARNATION MILK PRODUCTS COMPANY
134 CONSUMERS BUILDING, CHICAGO, ILL.

Carnation Milk

From Contented Cows

Sold by Grocers Everywhere

The label is white and red

Accurate Diagnosis First

No industrial hospital is complete without the most modern facilities for diagnosis. They must be ever ready for the immediate attention a patient's case demands.

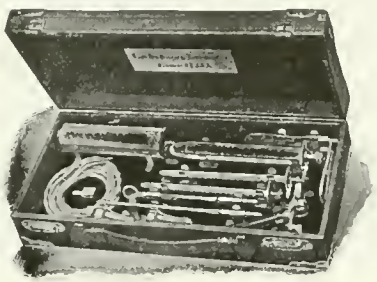
Diagnosis directs the course of treatment and can only be accomplished by the most advanced and approved aids.

For just such attention by the industrial or municipal physician our

MODERN DIAGNOSTIC OUTFIT

is arranged. It contains all the instruments most generally needed in urgent cases.

Others will be substituted if desired. Stamp "E. S. I. CO." is guaranty of our manufacture.



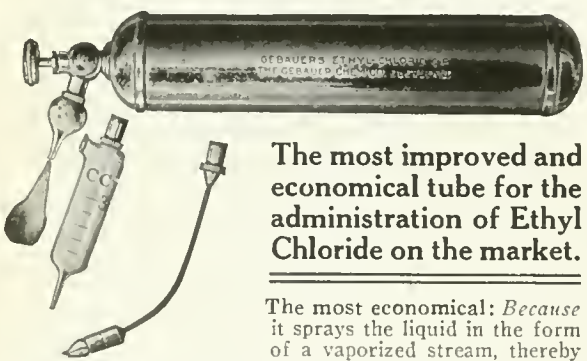
This outfit weighs but 4½ pounds. All instruments can be operated by our battery with adapter or upon direct or alternating current by means of our controller.

Illustrated catalogue sent upon request.

Electro Surgical Instrument Co.

ROCHESTER, N. Y.

Ethyl Chloride (Gebauer's) Local and General Anesthesia



The most improved and economical tube for the administration of Ethyl Chloride on the market.

The most economical: *Because* it sprays the liquid in the form of a vaporized stream, thereby hastening evaporation and consequent anesthesia, using 1-10 the liquid used by other tubes. *Because* the ethyl chloride is put up in a mteal tube that will not *leak* or *clog* and the liquid is guaranteed to maintain its purity indefinitely.

40 grm tube with ordinary spraying nozzle,	$1.10
80 " " " " " "	1.75
Flexible spraying nozzle alone, - - -	.50
Graduated dropper, - - - - - - -	.50

The flexible nozzle and the graduated dropper will fit either size tube and can be used indefinitely.

For Sale By

THE GEBAUER CHEMICAL CO.

CLEVELAND, OHIO

BOOKS OF THE MONTH

(Continued from Page 26)

a great responsibility on food alone, giving no thought to the conditions which may prevent the body from assimilating the foods necessary to fulfill these claims. Proper methods of cooking food materials, normal functioning of the organs of digestion, good hygienic conditions; in fact, correct habits of living and correct dietary habits are generally conceded to be helpful in arresting disease and in restoring patients to health.

Statements are found throughout the entire book which are founded on fact, but do not tell the whole truth, or which may be misleading to the public for whom the book was evidently written.

Mr. McCann calls the Deity into the discussion frequently. He condemns "modern refining processes" and some of our more conservative food specialists with equal emphasis. While these methods may be effective in attracting attention when talking to an audience, they are less desirable in print.

"Science of Eating" is a large volume, consisting of 408 pages, and contains many good points stated in a very pertinent way. Many people might be persuaded to reform their dietary habits through reading this book, but it will scarcely meet the needs of the true student.

ORGANIZATION OF PUBLIC HEALTH NURSING. By Annie M. Brainard.*

Since public health nursing is a profession still in process of evolution, with rapid changes taking place, any book on the subject of its organization must necessarily be of a tentative nature, rather than didactic. In this little volume, the author has tried merely to point out a few general principles which seem to her to be fundamental, and to describe various forms of organization that have been tried and found satisfactory. The rapid development in public health nursing resulting from the war makes it necessary for the public health nurse to organize her work efficiently. The author, after long experience in the public health nursing world in a city notable for its organized health effort, is well qualified to state the general principles of efficient organization as well as to place before the novice valuable suggestions regarding simple matters of detail.

The importance of the public health nurse having some form of organization behind her, no matter how highly trained she may be, is first brought out by the author. The organization back of her may be either public—that is, municipal, state, or federal; or it may be private—that is, supported and controlled by private individuals. It may be very simple or very complicated; an independent organization or a division of some other organization. The qualifications of the public health nurse are stated by the author, as well as the fundamental principles which she should keep in mind.

In the chapter on "Forms of Organization," some of the principal forms of organization which have been tried and found satisfactory are outlined. Five charts of organization plans present the subject in a helpful, graphic way. How to organize public health nursing in a new community is described, with suggestions as to the personnel and duties of the board of directors and the various committees—finance, nurses, and supply. The sections on records, statistics, and reorganization contain illustrations of history charts and different methods of reorganization.

(Continued on Adv. Page 30)

*The Macmillan Co., New York, 1919, $1.35.

A Laxative Food of Delicious Flavor

THERE'S no effort required to get your patients to eat this new all-bran food for overcoming constipation. They will enjoy its crisp, krinkly goodness and benefit from its healthful action.

Kellogg's
KRUMBLED BRAN

You never tasted bran so good—no resemblance to ordinary bran in appearance and flavor.

Ready to serve—ready cooked. Every package sealed in the Kellogg "waxtite" wrapper, which positively insures the original freshness and flavor.

This signature on the package is your guarantee—*W. K. Kellogg*

A request upon your professional stationery will bring a generous sample for your approval.

KELLOGG TOASTED CORN FLAKE CO., BATTLE CREEK, MICH. and TORONTO, CAN.

1 Cent Per Dish

is the cost of Quaker Oats.

1 Cent Per Bite

is the average cost of meat.

And 1 Cent Buys

but one-fifth of an egg.

Quaker Oats yields 1810 calories per pound. Round steak yields 890.

Quaker Oats cost 5½ cents per 1000 calories. Meat, on the average, costs 45c at this writing. Average fish costs 50c per 1000 calories, and eggs about 70c.

Quaker Oats form almost the ideal food in balance and completeness.

We argue that Quaker Oats, in these high cost days, should be the basic breakfast.

Quaker Oats

An extra grade of oat flakes made from queen grains only—just the rich, plump, flavory oats. We get but ten pounds from a bushel. These flavory flakes will make the oat dish welcome.

The Quaker Oats Company

Chicago

3286

BOOKS OF THE MONTH

(Continued from Page 28)

THE ANATOMY OF THE PERIPHERAL NERVES. By Melville Paterson, M.D., F.R.C.S., assistant inspector of Special Military Surgical Hospitals, professor of anatomy in the University of Liverpool, examiner in anatomy at the Royal College of Surgeons of England, etc.*

The object of this book is to provide a brief account of the peripheral nerves for the use of students and surgeons, particularly for those engaged in military orthopedic work.

The purpose, which is described in the preface, is admirably fulfilled in the text. The descriptions are brief and clear and the diagrams, of which there are a great number, are to the point.

There is very little that can be said about a book of this kind, except to point out its purpose and to indicate how that purpose has been carried out. The accuracy of the descriptions is to be taken for granted because much of the anatomical detail is taken from well-known anatomies, particularly from Cunningham. The Oxford Medical publications have in the last few years brought out a number of small manuals of this kind. They have proved themselves of service on account of their well chosen selection of subjects and on account of the clear way in which they are written. This book of Paterson's is one of the most useful of them. It is a book of easy reference and is particularly adapted to the neurologist and surgeon who is dealing with the problems clustering about the traumatic conditions involving the peripheral nervous system.

CEREBROSPINAL FLUID IN HEALTH AND IN DISEASE. By Abraham Levinson, B.S., M.D., associate in pediatrics, Northwestern University Medical School. With a foreword by Ludwig Hektoen, M.D.†

This is a very valuable little book on a subject that is one of the most important of present-day problems in clinical neurology. The author has sensed the significant phases of his subject in an unusual way and he has also felt the real difficulties of the practitioner who seeks to make the best use of the data that the study of the spinal fluid may furnish him. Out of the maze of conflicting opinions that have clustered about the subject he has been able to point out the significant facts that have been gained and upon the debatable questions he has preserved the right kind of skepticism.

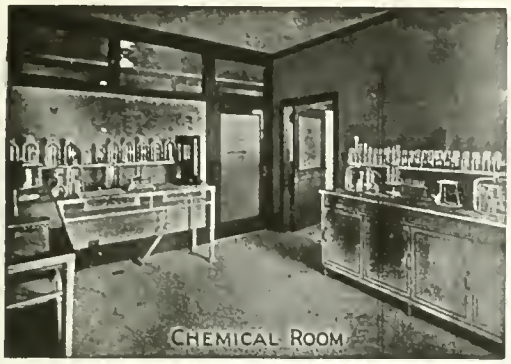
With this book the clinician can make use of the diagnostic aid which the study of a spinal fluid furnishes and will escape the pitfalls which lie ready at hand if too much weight is placed upon theoretical interpretations of doubtful evidence.

The chapter on the history of the spinal fluid is especially to be commended because of its brevity, accuracy, and incisiveness. The conception of the spinal fluid as a protective agency fulfills the known facts in the question much more than does any other explanation, and upon that basis its place in the mechanism of the physchology of the nervous system seems assured.

The description of methods of examination are clearly presented and the deductions from the data found in pathologic fluids are given in a precise and clear manner. There is a bit of confidence in the curve in the Lange Test in the case of tubercular meningitis that seems scarcely justified by experience. Not enough importance perhaps is given to the syphilitic curve in the same test. Such views are due, no doubt, to the fact that the author has

(Continued on Adv. Page 32)

* Oxford University Press, New York.
† C. V. Mosby Co., St. Louis, 1919, $3.50.



A LABORATORY SERVICE

for

The Industrial Physician

and

The Public Service Official

as well as

For the Private Practitioner

THE CHICAGO LABORATORY

The personnel and equipment of the Chicago Laboratory insures expert findings in all tests whether chemical or analytical in the shortest possible time consistent with high-grade work.

Containers for collections and specimens will be furnished gratis upon request, and if you do not have our Fee Table write now for it.

25 E. Washington St.
CHICAGO, ILL.

Ralph W. Webster, M.D., Ph.D.
Chemical Dept.

Thomas L. Dagg, M.D.
Pathological Dept.

C. Churchill Croy, M.D.
Bacteriological Dept.

TRADE MARK

For twenty-five years the firm of V. Mueller & Co. has supplied the needs of surgeons and hospitals.

Mueller materials are known for their excellent quality and pattern.

Unusual facilities are available to those contemplating the installation of industrial hospitals or first aid rooms.

A complete stock of surgical instruments, furniture and apparatus for immediate delivery means service which cannot be found elsewhere.

Our estimating department will gladly submit plans and quotations.

V. MUELLER & CO.

1771-81 Ogden Avenue Chicago

STERLING
Therapeutic Lamp
"The Light That Heals"

Has proved one of the most efficient methods of relieving pain; its effect is soothing and analgesic; its rays are germicidal. The warm, soothing, soft rays penetrate and vitalize every cell and tissue, new cell growth is stimulated; the body is refreshed and vitalized.

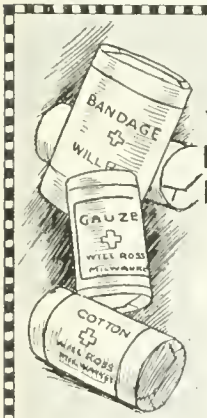
In rheumatism, neuralgia, neuritis, lumbago, in nervous conditions and a score of other symptoms and diseases, including skin and scalp disease, the Sterling Therapeutic Lamp is invaluable for the relief from pain, inflammation and for corrective purposes.

Scientific—Efficient—Economical

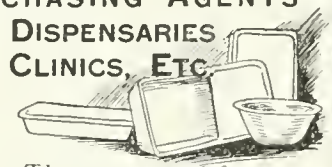
With stand it is ideally adapted for additional use as a spot light for operations and examinations as illustrated. Widely used in sanitariums, physicians' offices and hospitals; special sizes are adapted for the use of patients under the supervision and direction of the family physician.

Write for our interesting Illustrated Booklet showing the various sizes and uses of the Sterling Therapeutic Lamp.

Sterling Theraupeutic Lamp Co.
Dept. 21, 546 Garfield Ave., Chicago, Ill.



INDUSTRIAL SURGEONS
INDUSTRIAL NURSES
VISITING NURSES
HEALTH OFFICERS
PURCHASING AGENTS
DISPENSARIES
CLINICS, ETC.



The same satisfactory service that is given to hospitals throughout America in the furnishing of supplies is available to you. Write for our catalogue It lists merchandise of unquestioned quality at prices that will prove of interest to you.

Gauze
Cotton
Bandages
Sterilizers
Adhesives
Enamelware
First Aid Kits
Thermometers
Rubber Sundries
Sputum Supplies
Paper Goods, etc.

WILL ROSS
SUPPLIES FOR HOSPITALS, SANATORIA AND ALLIED INSTITUTIONS
MILWAUKEE, WIS. STATESAN, WIS.
Milwaukee Offices: 432 Broadway

BOOKS OF THE MONTH

(Continued from Adv. Page 30)

found most of his experience in pediatrics and it is upon this that the point of view of the book seems to be based.

The style of the book is good and it reads well and easily, a rare quality in medical books as the reviewer sees them. A word must he said in praise of the introduction written by Hektoen. This is a model of a prefatory note and serves to put the reader in a good humor through sheer delight at a difficult thing well and gracefully done.

TUBERCULOSIS IN MASSACHUSETTS

The increase in the Massachusetts State curve for tuberculosis is not to be ascribed wholly to the effect of better notification. The decline of the incidence of pulmonary tuberculosis has been more marked in the cities than in rural districts. Hence reorganization of territory is recommended to fill any existing gaps. Consulting service at the call of physicians to supplement nursing service, and better educational methods are to be instituted.

DEPARTMENT OF HYGIENE AT HARVARD

The will of the late Dr. Henry K. Oliver provides a fund for the establishment and for the liberal maintenance in the under-graduate department at Harvard of a full professor of hygiene, the professor to be a regularly educated physician of marked ability and industry, and of a temperament likely to enlist readily the confidence of young men. His chief function is to promote recreation and physical exercise among under-graduates of sedentary and over studious habits, and to instruct them in physical laws for the preservation of their health.

HEALTH ACTIVITIES IN COLLEGES

The rigid regulation by colleges and universities of everything pertaining to the hygiene of students as a trend in education in the past few years is discussed by Dr. John Sundwall, of the University of Minnesota, in *Public Health Reports*, November 7, 1919. The aims, organization, and activities are fully analyzed and university health service is declared to stand for positive health.

The same issue contains an exposition by L. L. Lumsden, Surgeon, of the United States Public Health Service, of the plan for rural health work. Preliminary to the cooperative plan of county health work rural sanitary surveys were conducted in eighteen counties located in sixteen states.[1] The conclusion that rural sanitation is needed, that it is feasible, and that its cost is less than the cost of illness, has directed service in this field toward assisting and actively cooperating with county and state health organizations in the establishment and maintenance of whole-time health organizations for continued cooperative health work in counties or townships as units of rural district government. County demonstration work in rural sanitation is now being conducted by the Public Health Service on as extensive a scale as the appropriations admit with results that warrant a radical extension of the business, says Doctor Lumsden.

Two tuberculosis hospitals are to be built by the state of Idaho. One will be in the northern part and the other in the southwestern.

[1] The findings and results of these surveys are reported in Public Health Bulletin No. 94.

The nutrient value of Virol illustrated in a series of cases, particulars of which have been supplied by medical men.

CASE No. 2

THE value of VIROL is well shown in this case. This child weighed 17 lbs. at 40 weeks and is in perfect health.

AFTER VIROL

SHOWING the handicap the baby had to overcome. This picture was taken at age 7 weeks—weight 2 lbs. 13 ozs., every food having failed and not able to digest milk itself.

BEFORE VIROL

Virol is valuable food for invalids and children. It is a preparation composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow Fat and Beef; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars: 50c, $1.00 and $2.00

Liberal samples and interesting literature sent to physicians on request.

VIROL is concentrated food, prepared with scientific skill from most nutritious substances. The proportions are carefully adjusted to diet formulae laid down by up-to-date physiologists.

Virol

Used in more than 2000 hospitals, sanatoria, and infant clinics in Great Britain

Sole Agents for U. S.

ETNA CHEMICAL COMPANY, 59 Bank Street, New York

MERCK & CO. NEW YORK · CHEMICAL WORKS, RAHWAY, N.J. · MERCK

On Prescriptions—

Merck's

Physical Conditioning

So many patients, especially women, lack the initiative to follow general advice regarding exercises, dietary, and personal hygiene. Physicians acquainted with my work are constantly referring these cases to me for physical and mental "conditioning."

A woman can often inspire her sex *to be* and *to do* and *hold her to this inspiration* by regular correspondence as men cannot.

Every pupil's requirements are studied individually, and each is directed according to her needs and her strength.

This cooperative work with the medical profession is giving results highly gratifying to both physicians and patients.

I shall be glad to assist you with patients who need conditioning through exercise, diet, breathing, correct poise, relaxation, reduction of flesh, or building of flesh.

Susanna Cocroft

624 Michigan Boulevard Chicago

FEDERATION OF BIOLOGICAL SOCIETIES

The Federation of Biological Societies, of which the American Physiological Society is a member, held its thirty-second annual meeting at Toronto, Ont., December 29-31.

BUBONIC PLAGUE

The seventh case of bubonic plague this year in New Orleans is reported, and with it comes the announcement of the president of the dock board that all port facilities of New Orleans are to be rat-proofed at an expenditure of around $2,000,000. All other dock facilities will gradually be rat-proofed in the interest of plague prevention and public health.

PROVE VALUE OF MEDICAL INSPECTION

The beneficial results of medical inspection in the schools of Cleveland, Ohio, which has been in effect for several years have proved the value of the system, and are especially important now that Ohio is planning a more comprehensive system in its public schools. Statistics for the past year show that 46.9 per cent of the defects found have been eliminated, compared with 35.4 per cent for the previous year.

ACADEMY OF MEDICINE ELECTS OFFICERS

The New York Academy of Medicine on December 4, 1919, at the meeting in New York, elected the following officers: Dr. Rufus I. Cole, first vice-president for three years; Dr. W. Gilman Thompson, trustee for five years; Dr. Sidney R. Burnap, member of committee on admission for five years; Dr. Cary Vogel, member of committee of library. The term of the president, Dr. George David Stewart, does not expire until 1920.

LOS ANGELES NARCOTIC CLINIC

Los Angeles has announced plans for the establishment of a municipal dispensary and clinic for the decreasing dosage treatment of narcotic addicts. The municipal clinic will be open mornings and evenings. It will be in charge of physicians working under the supervision of the Health Commissioner, a recognized druggist of ability, and nurses. It is expected to prescribe morphin and other narcotics just enough above cost price to bring the clinic up to a self-sustaining basis.

PSYCHOLOGY AS RELATED TO MEDICINE

More than twenty physicians and dentists are receiving from the extension division service of the University of California a course of lectures on psychology in its relation to medicine. This course is part of a plan of the University to offer its highly technical courses to any group of persons qualified to take the instruction, and similar courses in psychology will be given in San Francisco in January.

GYNECOLOGISTS AND OBSTETRICIANS ORGANIZE ASSOCIATION

At a conference of gynecologists held in Brussels, Belgium, the last week in September, the International Association of Gynecologists and Obstetricians was organized, with the following among the officers: president, Dr Franklin H. Martin, of Chicago; secretary-general, Dr. Frank F. Simpson, of Pittsburgh; councilors, Dr. J. Riddle Goffe, of New York; Dr. Thomas J. Watkins, of Chicago, and Dr. George Gray Ward, Jr., of New York.

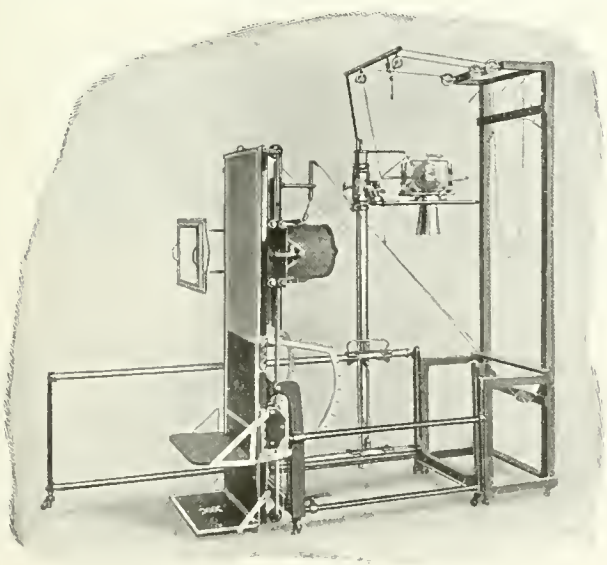
Curity
REG. U.S. PAT. OFF.

A Complete Line of
Supreme Quality
HOSPITAL SUPPLIES
Absorbent Gauze, Cotton, Bandage Rolls

Lewis Manufacturing Co.
Walpole, Mass., U. S. A.

New York
Philadelphia
Chicago
Cleveland
Kansas City
Oakland, Cal.

For Group Clinics—For Industrial Hospitals



When you are interested in an x-ray equipment representing the most advanced ideas consistent with conservative practice, to facilitate and expedite your work, then investigate a Meyer equipment.

MULTOSCOPE, a stereo-radiographic table with tube holder and radioscope for vertical, horizontal and inclined position, with self-contained aerial and high tension switch.

KLINOSCOPE, a fluoroscopic apparatus for vertical and horizontal fluoroscopy.

TRANSFORMERS, with a marked efficiency and conservation of tubes.

DUPLEX STEREOSCOPE, enabling the surgeon and roentgeonologist to observe the view at the same time.

A competent installer and service man for every installation

THE WM. MEYER CO. 1644 N. Girard Street CHICAGO, ILL.

Thorner Brothers

Hospital Supplies and Aseptic Hospital Furniture

388 Second Avenue New York City

"One Quality and One Service—The Best"

Rubber Goods, Glassware, Instruments, Syringes, Brushes, Operating Tables, Cabinets, Stretchers, etc.

—1860-1920—

With the coming of 1920, the house of Reed & Carnrick will round out

Sixty Years of Faithful Service to the Medical Profession

From the inception of our business we have ever sought the friendship and confidence of physicians, and whatever results we may have obtained, we do not hesitate to attribute largely to the splendid co-operation that has been given us by the medical profession.

Therefore, in calling attention to this—our Sixtieth Anniversary—we wish to thank our many medical friends not only for their unfailing interest and good will, but also to assure them that, as in the past, we shall continue to regard their confidence as "our greatest asset."

REED & CARNRICK

Jersey City, N. J.

DIETETIC CENTERS FOR THE TUBERCULOUS

A plan has been initiated looking toward the establishment in all hospitals of the state of Pennsylvania of dietetic centers in which dietitians furnished by the Tuberculosis Society of Philadelphia will instruct classes in the preparation of simple foods and the making of model menus designed to supply the greatest amount of strength. The first class attended by state nurses is being held at Jefferson Department of Diseases of the Chest, 238 Pine Street, Philadelphia.

PROGRESSIVE WORK AT HARPER HOSPITAL, DETROIT, MICH.

Harper Hospital, of Detroit, Mich., has established in connection with the out-patient department an oral surgery clinic which devotes particular attention to the treatment of cleft palate and harelip patients. This important extension of medical service is under the direction of C. L. Straith, M.D., D.D.S. The progressive spirit of this institution is also indicated by the requirements in their training school for nurses of special studies in the realm of public health nursing.

INTELLIGENCE TESTS IN PUBLIC SCHOOLS

Mental tests such as are used in the army, if experiments now being made prove as successful as is hoped, will be used in the public schools. Such intelligence tests have been used in schools for some time on individual children, but the new plan provides for handling them in groups, even whole classrooms at a time. In the preliminary trials tests were made on about 5,000 children. As a result, two series of tests were selected which will again be tried on several thousand more children in order that they may be further perfected before they are finally offered to teachers of the country.

NEW FIELD FOR MOTION PICTURES

Biology, the natural sciences, physiology, clinical pathology, practical hygiene, and sanitation offer an excellent opportunity for the motion picture camera, in the opinion of Charles F. Herm of the American Museum of Natural History. The biological field has been somewhat neglected, he says. Numerous semi-biological films have been released, none of which, however, have been displayed as successfully as if the same subjects had been treated by specialists in their fields of work. In the latter event, the educational value of the films would have been greatly improved without diminishing in any way the interest to the general public.

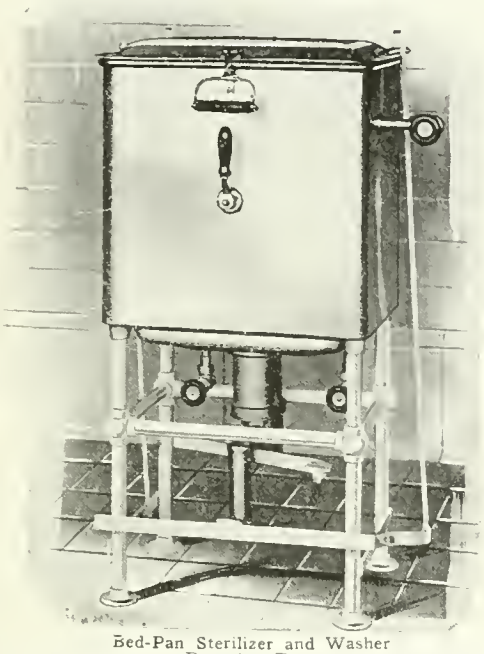
BOULDER COUNTY SOCIAL SURVEY

A survey of Boulder County, Colo., under the direction of the Bureau of Education and Research of the Mountain Division of the Red Cross, the Bureau of Public Welfare, of the Extension Division of the State University has been undertaken which will include all matters of health and sanitation, county and municipal administration, business and industry, recreation, adult and juvenile delinquency, mental deficiency, and relief work. A "Know Your County Week" is planned for the conclusion of the survey in order to disseminate the facts assembled. Provision is made for the follow-up work which may be shown to be needed, and appropriate organization has been made for carrying out special phases of the program adopted. Sound health work will be based upon the actual facts disclosed by the survey.

"AMERICAN"

THE PRODUCT OF SPECIALISTS

BUILDINGS versus EQUIPMENT



Bed-Pan Sterilizer and Washer
Dumping Type

The reputation of an institution does not depend so much upon the character of the buildings that house it as upon its PERSONNEL and its WORKING EQUIPMENT.

Beyond a certain point anything that may be added to the exterior becomes an embellishment—beautiful but not VITAL.

Proper sterilizing equipment is vital.

Next in importance to the human element in any undertaking are man's mechanical aids. Doubly so is this true of the Surgeon's work.

"AMERICAN" sterilizers are built to be worthy of this important role. DEPENDABLE, EFFICIENT and EASY OF OPERATION—they have gained the front and have kept it. Investigate "AMERICAN" sterilizers and you will find that the secret of their success is HIGHEST QUALITY and LONGEST SERVICE.

AMERICAN STERILIZER COMPANY, Erie, Pa.

REMEMBER ARISTON CEREAL COFFEE BLENDS

ARE NOT COFFEE SUBSTITUTES

At present prices of coffee they offer a means of making important savings, without reduction of beverage quality.

You are sure to like them better than any coffee you can buy at the same price per pound.

They add a nourishment valuable as an item of diet, and they reduce the caffeine content. They therefor make a many-sided appeal.

BEVERAGE QUALITY—COST SAVING
FOOD VALUE—CAFFEINE REDUCTION

We supply the following blends:

Blend No. 1, per pound **38c**
Blend No. 2, per pound **36c**
Blend No. 3, per pound **34c**
Blend No. 4, per pound **32c**
Blend No. 5, per pound **30c**

Let us ship you a trial order of 100 pounds. We pay the freight and guarantee the goods. You may return at our expense, if not pleased.

Specify grinding: MEDIUM for pot; FINE for percolator or urn

CALUMET TEA & COFFEE CO.

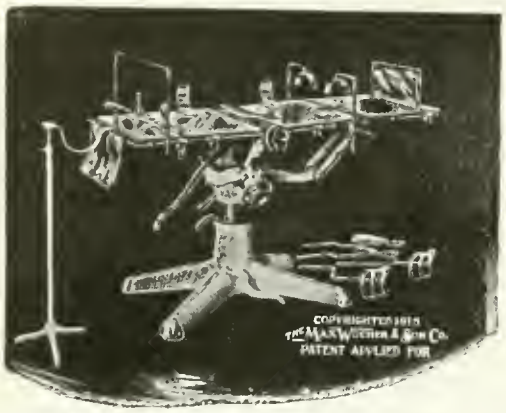
409-411 West Huron Street CHICAGO, ILL.

"Dealers Direct With You"

(1–20)

The Cincinnati Pedestal Automatic Operating Table

Every Known Position Can be Obtained



Revolves, Elevates, Lowers, Tilts, Slants, Inclines

Is without slow operating gear wheels, but is controlled by fulcrum and locked with Locking Device Lever.

Write for complete description of this table. Our 27th edition catalog contains Modern Hospital and Office Furniture. Free on request.

THE MAX WOCHER & SON CO.

19-23 W. Sixth Street, Cincinnati, Ohio.

Overton and Denno's

The Health Officer

By Frank Overton, M. D., D. P. H., Sanitary Supervisor, New York State Department of Health; and Willard J. Denno, M. D., D. P. H., Medical Director, Standard Oil Company. Octavo of 500 pages, illustrated. Price, $4.50, postpaid.

This new book, published in 1919, contains the information the average Health Officer must have in order to discharge his duties. It tells him what to do, how to do it, and why he should do it. It describes the various activities in which a Health Officer engages; his relation to boards of health, physicians, social agencies, and the public; his qualifications and methods of work; the various diseases and insanitary conditions with which he deals, and the scientific principles upon which preventive medicine is founded. The work is the result of ten years' experience in this field. While the book is designed primarily for Health Officers, it has a decided value to public health nurses, members of boards of health, social workers, teachers, and all others interested in organized health work.

The Modern Hospital Publishing Co., Inc.

58 E. WASHINGTON ST., CHICAGO.

CHILD HYGIENE ASSOCIATION ELECTS OFFICERS

At the annual meeting held in December, 1919, at Asheville, N. C., the American Child Hygiene Association elected the following officers: Dr. Philip Van Ingen, president; C.-E. A. Winslow, M.D., New Haven, Conn., president-elect; Drs. W. M. Chapman, Montreal, and Howard C. Carpenter, Philadelphia, vice-presidents; Henry F. Helmholz, Evanston, Ill., secretary, re-elected; Austin McClanahan, Baltimore, treasurer, and Miss Gertrude B. Knipp, executive secretary, re-elected.

PRESIDENT OF THE AMERICAN COLLEGE OF SURGEONS

Dr. George E. Armstrong, of Montreal, was elected president of the American College of Surgeons at the Ninth Annual Congress, held recently in New York. Doctor Armstrong is professor of surgery in McGill University, Montreal. Honorary memberships were conferred on Major Generals Sir Anthony Bowlby and Sir Robert Jones, of the British Army; Dr. Irving H. Cameron, of the University of Toronto; and on Prof. Theodore Tuffire, of Paris.

ANTI-GASEOUS GANGRENE SERUM

The 1918 report of the Rockefeller Foundation announces the production of an anti-serum not only for the gas bacillus, *B. welchii*, but also for other anaërobic bacteria occurring in cultivated soils. Experiments to enlarge the therapeutic properties of the anti-gaseous gangrene serum are so well advanced that it is safe to conclude that a permanent addition has been made to the measures now available for preventing gaseous gangrene, or for curing it when it arises in connection with industrial and other accidents of civil life.

DO SHORTER HOURS DECREASE OUTPUT?

The return of thousands of demobilized spinners and piecers to their old employment will indicate more definitely whether or not the reduction of working hours in cotton and other industries has resulted in more intense application and the maintenance of the previous output. During recent negotiations between employers and operatives, says *Commeree Reports*, the former sought to embody a clause for the speeding up of production in order to counterbalance the loss in working time, but this was not accepted as it was considered that the operatives worked as hard as they should be expected to do.

PROGRAM OF PUBLIC HEALTH SERVICE

Experience has shown that the best cooperation in Federal health work can be secured from the Federal aid extension principle, states a bulletin which has been issued by the United States Public Health Service, outlining its program for after the war needs. This bulletin appears as Supplement No. 35 to Public Health Reports.

The bulletin outlines the activities which the Public Health Service proposes to follow up during the times of peace under the following headings: (1) industrial hygiene; (2) rural hygiene; (3) prevention of the diseases of infancy and childhood; (4) water supply; (5) milk supply; (6) sewage disposal; (7) malaria; (8) venereal diseases; (9) tuberculosis; (10) railway sanitation; (11) municipal sanitation; (12) health standards; (13) health education; (14) correcting of morbidity reports; (15) organization and training for duties.

Cafeterias and Lunch Rooms Are Common Sense Health Insurance

The physical and mental well-being of employes are important factors in the efficiency of every industry. Faulty nutrition is recognized as a detrimental condition for the satisfactory progress of school children, as well as preventing 100 per cent service from the employe. Properly conducted Cafeterias have proved their worth in bringing the individual up to par in both industries and schools.

Rest and Club Rooms, considered essential by many employers, add that element of good-will necessary for the complete co-operation of the employe.

As the largest Cafeteria and Lunch Room Equipment house, we are prepared to design a Cafeteria or Lunch Room to meet any special needs, or to advise on correct equipment and installation. Regardless of what is required, we can supply it—at a saving. We furnish everything for Rest Rooms or Industrial Clubs at a saving to you of time and money.

Successful installations all over the country testify to our ability in these lines. Let us assist you in the formulation of your plans.

Write for This Special Literature

Book G10—Lunch Room Book—Containing complete data on industrial Lunch Room installations.

Book G40—Rest Room Book—The whole story of the Rest Room.

Book G60—Employment Betterment—The story of what industrial welfare work means in actual results.

ALBERT PICK & COMPANY

208-224 WEST RANDOLPH STREET, CHICAGO, ILLINOIS

Always Ready for Immediate Use

In Gonorrhea

In genito-urinary work, and especially in the treatment of gonorrhea, acute and chronic, Hyclorite cleans sloughing tissues, destroys toxins and stops discharges without irritating tissues. It actively assists repair.

Hyclorite is proving particularly successful in the treatment of old cases.

HYCLORITE

Concentrated Sodium Hypochlorite

Hyclorite requires no testing.
It is always ready for use.
Just add water and apply.
No waste. No waiting.
Non-irritating properly diluted.

Price, 32-oz., $1.25

GENERAL LABORATORIES
4615 South Dickinson Street
MADISON - - - WISCONSIN

The Storm Binder and Abdominal Supporter

PATENTED

A washable Abdominal Supporter adapted to the use of men, women and children **for any purpose for which an abdominal supporter is needed.** For General Support—as in Visceroptosis, etc. For Special Support—as in Hernia, Relaxed Sacro-Iliac Articulations, etc. For Post-Operative Support—as after operations upon the stomach, gall bladder, etc.

Illustrated descriptive folder with samples of materials and physicians' testimonials will be forwarded upon request.

All Mail Orders Filled at Philadelphia —Within 24 Hours.

Katherine L. Storm, M. D.
1541 Diamond St., Philadelphia, Pa.

AID FOR NEGRO MEDICAL STUDENTS

An offer of six scholarships of $1,200 each for negro graduates of American medical colleges who wish to take postgraduate work in pathology, bacteriology, physiology, pharmacology, or physiological chemistry has been made by Julius Rosenwald, of Chicago, the announcement having been made by the General Education Board of New York. Appointment will be made next year, selection of the candidates to be made by the following committee: Dr. William H. Welch, Johns Hopkins School of Public Health, chairman; Dr. David L. Edsall, dean of Harvard Medical School; Dr. Victor C. Vaughan, dean of the medical department, University of Michigan. Abraham Flexner is secretary.

THE WESTERN ROENTGEN SOCIETY

The Western Roentgen Society held its annual meeting in Chicago, December 10, 11, and 12, at the Hotel Sherman. The meetings were exceptionally well attended. The papers demonstrated the ever widening possibilities of the application of the various radiologic measures to the practice of medicine. The keynote sounded throughout was for conservatism, seeking a closer understanding and cooperation with the profession in order to bring out to the utmost the various utilities of radiologic endeavor.

The variety of subjects covered, the new ideas, and the new fields of research and progress attest to the broadening out of the radiologic field to take its place among the great divisions of medicine.

On account of the broadening of the scope of the work, the name of the organization is to be changed from the Western Roentgen Society to the Radiological Society of North America, and the journal now known as the *Journal of Roentgenology* is to be changed to the *Journal of Radiology*. The publication committee and editorial staff were increased in number and so arranged as to represent the various fields of work covered under radiology.

A series of very valuable papers was presented covering equipment, technic, research, and clinical interpretation. A notable contribution was offered by Dr. B. H. Orndoff, of the Frances Willard Hospital, Chicago, who reported his research work on pneumo-peritoneum, a technic which enables the distinction of organs in the upper abdomen and which should be of great value in determining the operability in a given case,—of cancer, for instance,—or be the means of detecting early involvement and so bring the patient to operation well within the safe limit. Cases in point were cited by Dr. H. J. Ravold, of St. Joseph, Mo.

At a joint meeting with the Chicago Medical Society, C. R. Bardeen, M.D., Madison, Wis., presented a paper on "Some Aspects of the Examination of the Heart by Roentgenology," and Russell H. Boggs, M.D., Pittsburgh, Pa., read a paper on "Combining Radium and Roentgen Rays in Malignancy." "Radium in the Treatment of Thyroid Disease" was the subject of a discussion by Henry Grote, M.D., of Bloomington, Ill.

The election of officers placed the following men in charge for the ensuing year: Dr. A. F. Tyler, Omaha, Neb., president; Dr. Alden Williams, Grand Rapids, Mich., president-elect; Dr. E. A. Merritt, Washington, D. C., first vice-president; Dr. W. S. Lawrence, Memphis, Tenn., second vice-president; Dr. Lloyd Bryan, San Francisco, Calif., third vice-president; and Dr. M. J. Sandborn, Appleton, Wis., secretary-treasurer. The next meeting will be held in New Orleans, the Friday and Saturday just preceding the meeting of the American Medical Association.

Semdac Liquid Gloss

(A SUPERIOR POLISH)

Makes Dust Danger-less

IN the cleanest hospital dust is everywhere. It cannot be eliminated, but Semdac Liquid Gloss will control it.

The hospital superintendent knows, that in his institution, dust is dangerous. He knows that at every movement in a room these tiny particles of germ-laden matter float in the air, threatening his patients. Semdac will control the dust.

Semdac is odorless, and may be used, at any time, without interfering with the comfort of the patients.

Semdac Liquid Gloss—the odorless cleaning agent—imprisons dust in a film, which renders it danger-less; also it minimizes the amount of free dust in a room.

Semdac Liquid Gloss, freshens and brightens all finished wood, metal and enameled surfaces, furniture and floors, for it polishes as it cleans. It is made in the laboratories of the Standard Oil Company (Indiana).

For sale by dealers and all agents or agencies of

Standard Oil Co.
(Indiana)
Manufacturers of Medicinal Products from Petroleum
910 So. Michigan Ave.
Chicago, U. S. A.

1915

The Norbury Sanatorium

ESTABLISHED 1901
LICENSED AND INCORPORATED

OFFERS

MODERN SANATORIUM SERVICE

in the treatment of

Nervous and Mental Disorders

Four Separate Buildings—Capacity, 125 beds—Modern Equipment—Complete Hydrotherapy—Individuation and Service the keynote. Rates vary with service required and environment chosen. Address communications to

The Norbury Sanatorium
Jacksonville, Ill.

Frank P. Norbury, A.M.M.D., Medical Director.
Albert H. Dollear, B.S.M.D., Superintendent.

The Wilgus Sanitarium

ROCKFORD, ILL.

FOR

Nervous and Mental Diseases

Under the supervision of DR. SIDNEY D. WILGUS, formerly superintendent Elgin and Kankakee State Hospitals.

Address DR. SIDNEY D. WILGUS, Rockford, Ill. Long distance phone, Bell 3767.

CHICAGO ADDRESS:

25 EAST WASHINGTON STREET

Thursdays only, 9 to 12 A. M. and by appointment

TELEPHONE, CENTRAL 1098

CLINICS UNITE FOR MIND CASES

The state hospitals and the Commission for Defectives in New York have united to form centers where facilities are provided for expert examination of cases showing mental disease or mental defect. Consultation will be available to individuals who find themselves unable to carry on their work or continue in their ordinary associations because of depression, weariness, forgetfulness, lack of ambition, or poor judgment. Parents, teachers, or physicians may refer any children who are slow in development or abnormal in behavior. In any case, the advantage is apparent in care and training adapted to the needs of the individual.

WILL PAY MATERNITY BENEFITS

Motherhood insurance, a part of a plan announced recently by the American Woolen Company, of New York, assures every prospective mother in the employ of that corporation of four weeks' benefits without cost to her.

The company also announced to its employees a plan of free sick and accident benefits effective at noon, December 1. The plan includes every employee of the American Woolen Company and its subsidiary companies. The basis on which these benefits are computed is as follows:

No employee is insured under the plan who is not on the payroll of the company on December 1, working for full time and full pay. An employee who is not at work on December 1 because of disability, will be insured from the date of his return to employment on full time and full pay. After December 1, new employees will be eligible when they have been in the employ of the company for six continuous months.

Those on the payroll December 1, and who have been employed for less than six months, will receive forty per cent of their average weekly income. Those employed continuously over six months and not more than one year will receive 50 per cent of their average weekly income; over one year and not more than two years, 60 per cent; over two years and not more than three years, 70 per cent; over three years and not more than four years, 75 per cent; four years and over, 80 per cent.

No employee will receive less than $8 per week nor more than $30 per week, regardless of his average weekly earnings.

These benefits will cover all cases of disability arising from sickness or accident inside or outside of the worker's place of employment, and are supplemental and in addition to the indemnities provided by the compensation acts of the different states where American Woolen Company mills are located for accidents arising at occupation to the extent of the difference between the indemnities provided for by the above plan and the indemnities provided by the compensation acts of such states, except that new employees hired after December 1 will be entitled only to benefits as provided by the compensation act until after they have completed six months' continuous service.

The benefits will begin only after seven days' loss of time and will continue thereafter for a period not to exceed twenty-six continuous weeks, so that for accidents occurring at occupation the amount of indemnity paid beyond twenty-six weeks and the duration of indemnity beyond twenty-six weeks, shall be only that provided for by the compensation law of the state in which the mill in which an employee works is located.

Benefits for maternity cases for employed women will be for four weeks, in amounts dependent on length of service.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors Alexander Lambert, M. D., S. S. Goldwater, M. D., *and* John A. Lapp, LL.D.
Managing Editor John A. Lapp
Editorial and Business Offices, 58 East Washington Street, *Chicago*

Volume 2. FEBRUARY, 1920 Number 2

NOTES AND COMMENT

SWASHBUCKLING LEADERSHIP

THE medical profession has always held high ideals of scientific leadership. In professional associations the most careful scrutiny of candidates has been exercised before election to the scientific offices of the associations. The records of all medical societies are remarkably good in this respect. The ideals of the profession of medicine have been universally upheld.

In these days of delicate relationships in all social affairs one would expect to find the same high type of leadership guiding the medical profession in helping to solve the difficult problems confronting the profession, particularly in its relations to the public. Anything less is a menace to the profession and to the public. The professional ideals of the physicians should pervade the whole activities of the profession of medicine. There is no place for the demagogue or the swashbuckler.

But there is evidence of present danger in this respect. An example has prompted this editorial. In the city of Brooklyn, N. Y., the medical society has apparently abdicated its leadership in public matters and placed it in the hands of the so-called Professional Guild composed of doctors, dentists, and druggists. This Guild is promoted for the purpose of fighting health insurance and its work is carried on by an apparently irresponsible public health committee. The voice of this committee and of its chairman becomes the voice of the physician, and the profession must bear the stigma which may be brought to it by the self-appointed leadership which the Guild produces and over which the profession has no control.

This committee and its chairman have already justified the fears of demagogy and swashbuckling leadership. It has spread broadcast most vicious tirades against the promoters of health insurance. No words are too strong in the vocabulary of the chairman to describe what he considers the viciousness of the men and women who are supporting this measure. To quote from a pamphlet of this committee:

> Behind this Bill is an organization called the American Association for Labor Legislation, "Made in Germany" as part of the "infamous Kultur" and imported to this country by a Russian disciple of Bolshevism and "I-won't-workism"; its board of officers contains the names of hysterical men and women and vicious men and women who have no knowledge of or sympathy with the needs of working people and who believe that the working man does not know what is good for him and "they do," and they are willing to take lucrative positions under the Davenport-Donahue Bill to do him good and to "DO HIM —good"; these people are paid professional philanthropists, and busy-body social workers, protégés of the foundations; misguided clergymen; editors, and officials and financial backers of such "parlor Bolshevik" papers as *The Survey* and the *New Republic* and such inflammatory papers as *The Crisis* and the *Messenger*, which tend to encourage unrest and race rioting among negroes; supporters, defenders, associates of the forces of unrest known as the I. W. W. and Bolshevists; the disciples of Lenine and Trotzky, whose gospel is the destruction of those things worth while for which men and women have given their lives.

Such a statement could hardly come from any but an unbalanced personality. It was made of men and women who are known individually and collectively all over the country as able, patriotic, and sincere Americans. In the whole list of officers and advisory council of the American Association for Labor Legislation, numbering a hundred persons, there is not a single radical of any description. Many of the most eminent employ-

ers, labor leaders, physicians, educators, and public men and women are on the list of those who are denounced by this ignorant, indiscreet tirade of the so-called Professional Guild.

Among the great organizations which have declared for health insurance are the New York State Federation of Labor, twenty state and twenty national organizations of labor, the New York League of Women Voters, the national and state consumers' leagues, seven official state commissions, the National Catholic War Council, the Jewish Conference of Social Work, and scores of other organizations. To characterize a measure supported by all of these organizations in the terms used throughout the propaganda of the Professional Guild of Kings County is the silliest twaddle. The individuals who sign such stuff should not be allowed to degrade the whole medical profession.

MODERN MEDICINE stands for medical leadership in health insurance. We believe that it is not primarily the duty of the profession to promote or to oppose its coming, but rather to analyze the problems of sickness and the relation of health insurance to them, and to guide the formulation of legislation so that the function of medicine may be fully recognized and the work of the physician safeguarded for the public benefit as well as that of the profession. The burning intolerance of those who have usurped authority in medical circles in Brooklyn is destructive of this ideal and will react disastrously upon the profession.

MISUSE AND NON-USE OF LABORATORY TESTS

A CYNIC has said that the modern clinicians value a laboratory test directly as the distance of the laboratory from the bedside and as the square of the time taken in making the test. He might have added, "inversely as the number of vowels in the originator's name." There is much truth in this hyperbole that we do lean too heavily on the laboratory.

Aside from research, there are three ways of using a laboratory: (1) when really useful information can more certainly and more expeditiously be gained from a laboratory test than from clinical observation, or when confirmation of the conclusions drawn from the latter is necessary; (2) to gain time to look up a subject in the literature; or (3) to save ourselves trouble or to impress our patients. The first is the legitimate; the second a pardonable use; the third is only too common and is wholly to be condemned. It is as bad as the two equally common faults of neglecting the use of laboratory facilities in appropriate cases, and of putting the biochemist to great trouble while neglecting the clinical, and especially the dietetic observations which alone can give to his laboratory results sound clinical applications.

We have seen a complete series of the report forms on routine laboratory tests used in one teaching hospital. They covered half the surface of a good sized door. We wondered how soon in that hospital they got down to each "case" as a real human patient. Heart diagnosis is taught with the electrocardiagraph to the minimizing of the more convenient means of diagnosis, and this to physicians who will practise their art in the rural solitudes of Podunk or on the brumous shores of Nova Scotia.

A sample of a patient's blood having been sent to the laboratory for a Wassermann test, many clinicians seem to consider themselves dispensed from making an examination of the edges of the tibiae, of the eyes, and of the parts where signs of actual or of past lues may manifest themselves. The Wassermann is one of the most valuable of our diagnostic aids; but it should be an assistant, not a master.

The information obtained from blood analyses, when these are conscientiously and competently performed, is valuable; but their availability does not excuse neglect of strict dietetic control and of the indications obtained by correlating a known intake with the results of quantitative urinalysis. Blood taking is more impressive than diet control and urine taking; but blood analysis for nitrogenous constituents is more capricious and in most cases is not more informative. Blood taking is often very disagreeable to the patient, even with a skillful operator.

There is more justifiable laboratory work than most hospitals can afford to do. Let us limit the demands on the laboratory to this really useful work, and let us use it intelligently.

PENALIZING EDUCATION

IT was, at one time, not unusual to find in publications of a certain class, advertisements of the following type:

> Wanted.—College graduate as governess to teach three children the usual subjects, also French, German, and music; and to help in the house. No salary, but the advantages of a Christian home.

Such advertisements are rare nowadays, though the following, culled from the columns of a New York contemporary, seems to carry an echo of those bygone days:

> Religious organization wants stenographer . . . looking for high grade, trustworthy person who considers . . . high character of employment more desirable than temporary wage profiteering.

Recently, an advertisement for a pathologist

has appeared in the medical press, inserted by a first class state medical school. The highest possible qualifications were demanded, graduates of Johns Hopkins, of Harvard, or of the school advertising, only would be considered. Experience of teaching and of laboratory practice was called for. A man who could measure up to the specification would be not less than thirty years of age. The salary offered was $1,600 per annum. Less than the present average earnings of a bricklayer's laborer.

We shall be told that the enormous advantage of association with distinguished colleagues outweighs the paltriness of the remuneration. "No salary but the advantages of a Christian home!" Doubtless our attention will be drawn to the "prospects."

A bull stood on an arid mountain overlooking a verdant but distant plain. "Splendid prospect," he said, "but damn little grass."

The man who accepts this post either decides on celibacy at his best age, which is anti-social, or he is moneyed. In the latter case, the service of the state is reserved to, and the money of the people is being employed for the advantage of a privileged class.

At the present time, to preach education as a means to material success, is to deceive our hearers. Brains are paid for but *not education.* Real education is a drawback.

If you want your sons to make a material success in life, let them leave school in the grades and start as newsboys. Then, in early adult life, they may be in a position to employ highly educated men to eke out their own slender erudition, at salaries less than they dare offer a second rate chauffeur.

CARDIAC AILMENTS A PREVALENT CAUSE OF DEATH

CARDIAC ailments are far more prevalent than is generally suspected, while ignorance of this fact is a matter of surprise, since the danger from this class of maladies is fully understood, according to a pamphlet issued by the Association for the Prevention and Relief of Heart Disease.

An official report of the health department of the Association shows that 10,682 deaths in New York City alone in a single year were directly due to organic disease of the heart, while in the same period tuberculosis, in all its forms, caused 9,622 deaths and cancer but 4,702.

The Association declares that not less than 25,000 public school pupils of New York City have permanently damaged hearts while many more suffer from other diseases which are liable, unless controlled, to bring about the same result. Adults suffer for years from heart disease, mistaking their symptoms for those of indigestion or other stomach troubles, and wonder why their sufferings do not yield to home remedies.

The Association in its pamphlet asserts that the prevention of heart disease presents both medical and social problems, but it urges the prompt removal of diseased tonsils and adenoids and the immediate care of decayed teeth, as the most effective preventive against infection with rheumatism, which is cited as an infectious disease more frequently affecting the heart.

Poisons of alcohol, tobacco, tea, and coffee are mentioned as "playing a definite rôle" in degenerate diseases of the heart.

Dr. Lewis A. Conner is president of the Association, and Ray Morris, the treasurer, while among the governors, who number many lay members, are Dr. Alexander Lambert, Dr. Haven Emerson, Dr. John W. Brannan, and Dr. S. Josephine Baker.

The Association is now engaged in furthering the establishment of dispensary classes for workingmen with crippled hearts in the many city hospitals, and also seeks the opening of more convalescent homes to patients of milder type, and the founding of institutions for the permanent care of permanent invalids from the same cause.

SCIENCE AN ESSENTIAL COMMODITY

THE general public of this day wants more from the medical profession than was demanded by the public of yesterday. Health officers have educated their communities to the need of better living conditions, improved sanitation in cities, and new standards of hygiene. Their colleagues in private practice and in the hospitals have brought to thousands of families a better knowledge of the service which the physician and surgeon can perform for society. Industrial physicians have established a firm and lasting working acquaintance with employers by demonstrating to them the direct benefits that come from utilizing medical science for business ends.

Physicians see in these manifestations of public interest a greatly increased demand for their skill. It is the law of supply and demand in operation. The physician has created new demands and it becomes his business to supply these demands. How shall the medical profession meet these needs that only medical science can satisfy?

Here are circumstances which compel the medical profession to undertake the task of reducing the recondite findings of research to simple state-

ments that will find a broad application in all health fields. It may require a hundred years of observation to formulate a physical law, but once formulated, it should be immediately put to work in the service of science and mankind. The findings of the laboratory are not for the edification of the initiated, but are subject to translation into terms of physical betterment for the masses.

The time is right for such interpretation to the people. The physician is free to admit that his highly specialized service, without better organization, is not available to the masses. The employer begins to see the relationship between high pressure methods, bad working conditions, and reduction in output, time loss, and the expensive labor turnover. The employment manager senses the need of a psychic as well as a physical evaluation of his men. Sporadic health education and the piecemeal efforts of uncoordinated health agencies have so far enlightened the mass of the people that they begin to demand health for themselves, and a place in the sun for their children. They are no longer content with unremitting, unrewarded toil, and begin to react in various ways from the repressions they have suffered.

The interest is keen and universal. All that is needed is an interpretation of science into the language of the people; a survey of the general situation; and a coordination of existing health agencies so that duplication of efforts and costs will be eliminated, and the entire field covered.

The difficulties of such an undertaking are not insurmountable. The problem exists. Every one is groping. The physician needs a more universal contact. The employer needs a more comprehensive view of the whole industrial situation. The manager needs a sympathetic understanding as well as trade tests. The worker needs more than a pay envelope.

In other words, there needs to be a universal understanding and a widespread application of modern science to the necessities of real life. Nothing is detached or isolated. The physician must not lean to research to such a degree that the problem interests him more than the patient. On the other hand, interest in special directions is all gain if scientists, after each excursion into their several fields, rejoin one another on a common ground to report and reckon progress. Thus will the essential unity of all the sciences be appreciated and mankind be made the beneficiaries of the cumulative stores of knowledge. "Knowledge is more than power; it is the condition for growth." The essential thing, therefore, is a constant and complete interchange of ideas, mutual need met by mutual service.

TO DIRECT RED CROSS HEALTH SERVICE DEPARTMENT

Dr. Erwin A. Peterson of Cleveland, Ohio, who has been named director of the newly-created special health department of the American Red Cross to direct certain phases of the organization's health conservation program.

DR. ERWIN ALBERT PETERSON, recently appointed director of the Health Service Department of the American Red Cross, is a graduate of Ohio Wesleyan University and of the Medical Department of Western Reserve University of Cleveland. He has had an extensive experience as an educator, a social worker, and a health executive, having been head worker of Goodrich Social Settlement for several years, and a teacher and director of the School Health Department of the Cleveland public schools, where he built up one of the strongest departments of the kind in the country. Dr. Peterson served as major with the American Red Cross Commission on Tuberculosis to Italy, during the war, and directed the Educational Hygiene Department. He is intimately acquainted with the different types of communities with which he will have to work, as he was born on a farm, spent his later boyhood in a town of less than 10,000 inhabitants, and after leaving college lived in a city. Dr. Peterson brings to his work a technical training supplemented by a very valuable social and educational experience. He is now located at National Headquarters, American Red Cross, Washington, D. C. The plan of the work which he is to undertake calls for cooperation with other existing health promotion and disease prevention organizations throughout the United States, the Red Cross acting alone where no other health agency exists, in an effort to reduce the high mortality due to preventable disease, and to improve general health conditions. Public health nurses will be assigned to many small communities.

REHABILITATION IN ITS RELATION TO THE PHYSICIAN

By A. C. BURNHAM, M.D., New York

THE Vocational Rehabilitation Act as amended by the Act of July 11, 1919, provides, "that every person enlisted, enrolled, drafted, inducted, or appointed into the military or naval forces of the United States, who since April 7, 1917, has resigned or has been discharged or furloughed therefrom under honorable condition, having a disability incurred, increased, or aggravated while a member of such force, or later develops a disability traceable, in the opinion of the Board, to services with such forces, and who in the opinion of the Federal Board for Vocational Education is in need of vocational rehabilitation to overcome the handicap of such disability, shall be furnished by the said Board, when vocational rehabilitation is feasible, such course of vocational rehabilitation as the Board shall prescribe and provide."

SOLDIER AND CIVILIAN

Medical service under the Vocational Rehabilitation Act provides for every eligible sick or injured soldier the sort of care his case calls for, and such re-training as restores him a functioning member of society.

The machinery of medical organization under this service has been developed to reach every disabled man, and care for him till he is self-sufficient and self-sustaining.

Is it visionary to hope that the same standard of scientific care may some day be available for the average citizen?

Application Depends on Physician

The work now being undertaken by the Board is interesting to the physician not only from a humanitarian and social standpoint but also from a professional point of view, because so much of the practical application of the Act is dependent upon the physical examination of the applicant, and upon the opinion of the medical examiner as to the advisability and feasibility of any suggested course of vocational rehabilitation.

How does the United States Government decide whether the disabled soldier or sailor or marine has or has not a sufficient degree of disability to entitle him to vocational training? How does it decide whether or not the training is suitable for the individual case? How does it decide whether an injured soldier is physically able to continue training after it is once begun?

If you were in the military forces of the United States and were wounded in the Argonne, or if you were struck by a truck at Brest, or if you developed tuberculosis at any Army camp and never got abroad, and if, as result of your injury or disease, you are handicapped in the pursuit of your ordinary occupation, you may be entitled to vocational training by the Federal Board.

Soldiers are kept in the Army until their physical condition is practically stationary, until the wound is healed, and the disability shows no further signs of improvement; or until the disease, if it be rheumatism or tuberculosis or what not, has reached a stationary stage. He is then discharged from the Army on what is known as a "C.D.D.," a Certificate of Disability for Discharge. This certificate of disability states the degree of disability, which is the preliminary information upon which the allowance for War Risk Insurance is based. In this, as in all the steps of rehabilitation, the procedure for the sailor or marine is practically the same as for the discharged soldier.

To Reach Every Disabled Man

The man is returned to his home and if he happens not to have seen the camp or hospital representative he then takes up the question of training with the local representative of the Division of Rehabilitation, Federal Board for Vocational Education, in one of the fourteen districts of the country. The Board is anxious to get in touch with every disabled man. This has been done largely by representatives at the hospitals and camps previous to discharge, and for later cases through the official records, especially those of the Bureau of War Risk Insurance and the Adjutant General's office at Washington. If the man has a self-evident disability, the Board makes the attempt to get in touch with him if they have any possible means of locating his whereabouts. Amputation, partial blindness, and all serious cases are passed upon with the least possible delay. Training is often begun within a few days.

The ex-service man has had the best medical and surgical intellect of the country interested

in his recovery. He has been under the care of specialists, the best obtainable in either military or civilian medicine. Many prominent surgeons are being retained in the Army and Navy largely for the care of the wounded soldier. He has had privileges of x-ray and laboratory facilities to an extent not available to the average civilian. He has received his Army pay and allowance while he was under treatment, previous to discharge.

For the purposes of administration the Division of Rehabilitation has divided the country into various districts. The New York District, with offices on the seventh floor at 469 Fifth Avenue, has charge of all the discharged men in the states of New York, New Jersey, and Connecticut. It is numerically the largest district in the country.

Let us suppose that the soldier has applied for training at the District Office. He is first seen by the vocational advisor who talks the matter over thoroughly with him and decides tentatively on a course of training which is agreeable and suitable to the man and at the same time possible of execution. Training is suggested as far as possible along lines in keeping with his former experience and education.

The Classification of Handicaps

Here again the medical profession is called upon. The man is sent with all available records to the District Medical Officer or one of his assistants. The physician examines him carefully and gives his opinion as to whether the condition is a major, minor, or a negligible handicap. This is a very important decision because the character of the training depends on whether the case is considered as major or minor.

The instructions issued by the Federal Board on this point are as follows:

(1) *Major Handicap.*—This classification includes cases in which, from the point of view of the entry in question, the disability will be a real and permanent handicap in the occupation such as to affect employability and earning power.

(2) *Minor Handicap.*—This includes cases in which, from the point of view of the entry in question, the disability involves some inconvenience that does not interfere in any real way with the employability or earning power and that frequently may become negligible after a brief experience in the vocation.

(3) *Negligible Handicap.*—This includes cases in which from the point of view of the entry in question, the disability may be disregarded in considering the man's employability and earning power.

In some cases the question of handicap presents a difficult problem. Especially is this so of those who complain of disability with indefinite or ill defined symptoms. In such cases the District Medical Officer may send the man to a specialist for consultation, to a radiographer for an x-ray, or to a laboratory for a special analysis. Here the physician has at his command all the methods required by modern scientific medicine for the diagnosis of disease. For example, a man complains of weakness in his hand following a gunshot wound of the arm. A neurological examination shows that he has a partial paralysis of one of the nerves of the arm and that his disability is probably permanent. Such a man will be classed as a "major handicap." Another complains of pain in the elbow when the elbow is bent, following an old fracture. An x-ray of the elbow shows a small spicule of bone projecting into the joint. Operation is not considered advisable and the man is given a "major handicap, probably permanent." The examination, involving as it does one or more specialties, is such as cannot be secured by the average civilian because of the expense.

Some men are found who are not fit for training. They show a recurrence of their war disability or a complication of their injury after leaving the Army. What can be done for them?

Medical Care is Available

If the condition is mild it may be treated by the United States Public Health Service which undertakes the care of illness of this type. They have a number of hospitals for the care of these patients, among others the Marine Hospital on Staten Island and what was formerly the Polyclinic Hospital on West Fiftieth Street. Once more the best of medical treatment is available. The medical service is augmented by the employment of local specialists. When the patient is cured, he applies again to the district office of the Federal Board for Vocational Education for training.

After the man is passed upon by the medical officer and the vocational office, his papers must be reviewed by the District Case Board and finally approved by the Federal Board in Washington. When approval is received, his training is started. To obviate delay, representatives from the central office at Washington have recently been placed in the district office.

Major handicaps entitle the man to training and eighty dollars monthly. When there are dependents, an additional allowance is made. Minor handicaps entitle the man to a period of training during which time he continues to receive his allowance from War Risk Insurance. In case of

a negligible handicap the attempt is made to place the man in a position without training.

However, the physician and the disabled soldier have not yet parted company. During the course of training the man may break down or may find that the work is unsuited to one with a physical handicap. The doctor again examines him and may recommend hospital treatment, or may advise a change to another vocation for which he is presumably better fitted.

During the training the man is supposed to be treated by his own physician for intercurrent disease if it occurs. However, through the Red Cross, medical attention is available not only for him but for his family as well. A large number of men have been cared for through this agency and a number of men sent to the country for periods of convalescence.

Personal Equation in Injury Cases

There is a considerable human interest problem in the examination. There may be seen some of the terrible results of war, met with a spirit of bravery and heroism worthy of the cause. Some men appear determined to belittle their disability and have to be argued into accepting training. Such men succeed with a small amount of help and guidance. On the other hand, cases are seen in which a simple injury with no apparent disability has so unsettled the soldier's mind that he is unable to undertake any form of vocational education. These latter are the hardest cases to deal with, the men being unsettled and not to be depended upon. It is hoped that in time they will find themselves and become useful citizens.

The following three cases are typical:

F. O. B., age 24, Sergeant, Field Artillery. Irish parentage. Enlisted April 19, 1917. Discharged October 7, 1919. *Diagnosis*—Old scar following mastoid operation, left side. In hospital nine months. Discharged from hospital October 7, 1919. *Disability*: Deafness, left ear. *Previous Occupation*: Student, self-supporting. Unable to continue course for lack of funds. In this case the handicap is considered as 25 per cent. If this man is allowed to complete his course in electrical engineering, he will be able to overcome his handicap. Recommended for course in Massachusetts Institute of Technology.

E. W., age 24. Serbian parentage. Enlisted in Infantry December, 1917. Wounded July, 1918. In United States Army hospitals eleven months. Discharged June, 1919. War Risk Bureau gives disability as 75 per cent. *Previous occupation:* Laborer. Examination shows multiple gunshot wounds completely healed. Complete blindness, right eye, following wound of temple. Deformity of right hand following G.S.W. Is unable to use hand for finer movements, but has strong grip and will be able to do heavy work. New occupation advised: vulcanizing. This man will be sent to a trade school to learn vulcanizing. As a skilled worker he should receive more pay than previously and be able to overcome his handicap. As a laborer he would be a charge to the community.

R. S. G., age 26. American. First-class seaman. Enlisted November, 1917. Served as armed guard on commercial liner. Discharged January, 1919. *Previous occupation:* Machinist's helper. *Diagnosis* (February, 1919): Nephritis, chronic parenchymatous. Disability complete; unable to perform any work. Referred to Marine Hospital, Staten Island, for treatment. October 8, 1919: Man has been in hospital for nearly eight months. Returns anxious to go to work. Examination shows that he is still suffering from nephritis and able to do only very light work. If this man does hard work his trouble will be aggravated and he will be a charge on the community. He should be sent away where he will have the opportunity to do light work and where he will be under medical supervision.

CONGRESS ON INTERNAL MEDICINE

The American Congress of Internal Medicine will meet in conjunction with the American College of Physicians in Chicago, February 23 to 28. The sessions will include daily clinics and laboratory demonstrations in hospitals and teaching institutions, and evening meetings, one of which will embrace the Fourth Annual Convention of the American Congress of Internal Medicine.

UNIFIED MEDICAL SERVICE IN ENGLAND

The growing possibilities of improvement in personal and social welfare depend very largely upon the extent to which each practitioner becomes a medical officer of health in the range of his own practice, says Sir Arthur Newsholme in the Reconstruction number for January, of *The Survey*. By socialization of medicine, he means rendering available to every member of the community, irrespective of any necessary relation to the ordinary conditions of individual payment, all of the potentialities of preventive and curative medicine.

He gives a short historical account of the claims of preventive medicine in saving and prolonging human life. Hospitals offer a partial solution in reducing the possibility of massive infections from tuberculosis, for instance. The most significant field in which preventable disease continues and which promises immediate and favorable returns is the systematic improvement of the sanitary environment of maternity and childhood. A concise statement is made of the personnel and organization of the whole- or part-time medical service rendered by the medical profession in England to the Government, which now constitutes a nearly completely unified state medical service.

Complete service, adequate to the needs of the community, he considers must grow not by legislation but as the result of steady advance. The outstanding needs are: (1) The provision of hospital beds; (2) the provision of gratuitous medical services for maternity and infant consultations, eye, throat, skin and venereal disease, tuberculosis, and x-ray service; and (3) the provision of a complete nursing service, available under the easiest possible conditions.

The hospital would thus become a center from which the community work would radiate in the practice of preventive medicine in its widest sense, and it is not beyond the range of human ingenuity to provide schemes for district medical officers (health and clinical), adequately trained in public health work, and linked up closely with the hospital and dispensary unity for their area. "Sound health is our greatest personal and national asset, and disease is more expensive than health."

THE SANITARIAN'S DEFINITION OF A LIVING WAGE

By DONALD B. ARMSTRONG, M.D., Assistant Secretary, National Tuberculosis Association; Executive Officer, Framingham Community Health and Tuberculosis Demonstration, Framingham, Mass.*

WHAT constitutes "an adequate family income"? Never before has so much consideration been given to this question and never has there been so widespread and insistent a demand for an economic adjustment which will effect an adequate income for the great mass of citizens.

It is not the purpose of this paper to deal with the dollars and cents considerations of this problem. Others, with more knowledge and greater experience, are studying the practical side of the question. We now have available the recent valuable work of Commissioner Meeker, one of the nation's foremost authorities on this subject.

Presumably, those who are giving attention to the question of a theoretically adequate family income, a "living wage," include in their considerations the essentials for disease prevention and health maintenance. We shall endeavor in this paper to try to find out, not so much what these essentials cost nor so much what proportion of a total income must be spent for health essentials, as what the essentials *are*.

Problem Has Dual Aspect

To meet present urgent income needs many old established formulae, and many new panaceas, are being advocated. From the point of view of solution, the problem seems to have a dual aspect, forcing recognition of two main factors: (1) the need for more money; (2) and perhaps as an alternative, the need for lessened disease hazard.

It may perhaps be worth while to mention a few of the more conspicuous devices that have been experimented with to meet these needs. We have, for instance, as measures to increase and standardize income:

(1) *Minimum wage legislation.*—So far as this country is concerned, the first minimum wage legislation was enacted in 1912, and we now have legislation of this character, aimed at the protection of women and children, in thirteen states. Coincident with this legislation have come efforts to determine the minimum essential family income. For instance, in December of 1917 the Bureau of Municipal Research of Philadelphia estimated that $1,200 was necessary for the maintenance of a family of two adults and three children. More recent estimates, based on subsequent increases in living costs, place the minimum at $1,500, a figure recently set by students of the problem in Cleveland, Chicago, and elsewhere.

(2) *Wage boards.*—Out of the minimum wage agitation have come official wage boards in many of our states. The wage board type of legislation has the advantage of greater flexibility. A bureau or commission is created, and wage boards are formed for the important occupations. These boards have been endeavoring to set a minimum rate of wage that shall be "sufficient to cover the necessary cost of proper living."

Independent Relief Measures

Certain industries, acting independently, have also endeavored to meet the wage problem in somewhat this way, specifically by a current adjustment of wages to the cost of living, according to a more or less complicated formula. For instance, this plan has been adopted by the Franklin Motor Company. The danger in this method seems to be that of inflexibility. Unless carefully devised, the rigidity of the scheme makes it difficult to effect a greater relative increase in wages at the lower end of the scale, where the increase is most needed.

On the other hand, as measures to lessen the stress and hazard of industry and thereby decrease the sickness drain upon family incomes, there may be mentioned a number of movements, such as the "one day of rest in seven" agitation, the "eight hour day" movement, and the expansion of medical and social welfare work in industry. Conspicuous in this group of measures

THE WILL TO HEALTH

Disease is not, as unregulated humanitarians would have us believe, necessarily a result of economic conditions, nor does a living wage, even in connection with adequate health machinery, insure an appreciation of health values.

A living wage does not assure healthy habits, for the rich and the poor alike fail to practise personal hygiene.

To insure that the worker lives up to his health knowledge, the standard of living must be raised to a good working morale. Self-expression, the instinct for workmanship, enthusiasm for the job, are presupposed before we can hope to arouse in the workman an effectual will to health.

*Read before Forty-Seventh Annual Meeting of the American Public Health Association, New Orleans, October 27-30, 1919. Published through the courtesy of the American Journal of Public Health.

is the tendency to experiment with various forms of sickness insurance, one of the most effective of which is the mutual employees benefit association, which puts the burden of increased illness in part at least upon the employees, through higher insurance rates. All of these movements, aside from their social and medical value and significance, do undoubtedly tend, indirectly at least, to bridge the gap between inadequate income and essential needs.

This is by no means a complete list of the movements in this field. It is simply a more or less haphazard selection of the devices employed to meet the problem, and is in that sense only a summary introduction to our subject.

A Question of Interrelations

From the point of view of the sanitarian it is perhaps more logical and useful to give primary consideration to certain more general questions. Certainly from his point of view it is desirable to determine what are the essentials of hygienic living, and what constitutes from this aspect a "living wage." It is perhaps necessary to go even further back, and to define with greater care than is ordinarily the case the fundamental terms in the present discussion.

What, for instance, is "living"? What is the relation of "living" to health? Is it not obvious that the definition of a "living wage" must depend on the definition of "living"?

Now, the relation of health to living presents two complementary aspects. It has both a negative and a positive phase. It is both preventive and creative. We should demand for every family the means to prevent disease, that is one consideration. We should also demand for every family the means to create health for that family,—this is a second and larger consideration. This latter consideration means the opportunity for health, mental and physical,—really the opportunity for happiness.

Obviously, "living" means more than existing and to live adequately demands more of the imagination, and also more of the pocket book, than to exist. "It is not life we love, but living." To live is to be free from the burden of present poverty and the fear of future want, and to be able to enjoy present good.

Disease by Economic Groups

In the relation of income to illness we ought also to refer to certain fallacies, or at least partial truths, which need to be recognized.

Undoubtedly the most distressing cases of poverty are found in association with protracted disease, such as tuberculosis. Consequently tuberculosis workers are perhaps more than others impressed with the cause and effect relationship that apparently exists between disease and poverty, or poverty and disease. It is frequently stated that it will be impossible to stamp out tuberculosis so long as people live as they do, in extreme poverty, with poor food, inadequate housing, and in squalor, filth, and congestion. This is certainly more or less true, and because of the relationship of poverty to disease the income is a fundamental consideration. Yet it is not the whole consideration, as must be evident from certain striking findings derived from the tuberculosis field itself. A too rigid assumption of the theory of the economic cause of disease, introduces certain fallacies and premature assumptions.

In a general way it may perhaps be safely stated that the cause of disease depends upon three main factors: (1) the environment, which includes hygienic surroundings, the possibilities of contact, working conditions, income, and such factors as economic and social adjustment; (2) race habits; and (3) race stock.

This last factor, namely, race stock, seems to be of greater importance than is ordinarily supposed; though it is a factor that the environmentalist, closely concerned as he is with the immediate and practical problems of human relationship, tends very easily to lose sight of. By way of illustration of the importance of other than direct environmental factors, there may be offered the following points, from the records of the Framingham Community Health and Tuberculosis Demonstration:

(1) Disease incidence (general morbidity and tuberculosis) by community districts, classified on an economic basis.

One of the activities of the Framingham Community Health and Tuberculosis Demonstration has been the examination of as large a section section of the population as could be reached. One of the reasons why Framingham was selected for this work was because it offered exceptional opportunities for the classification of disease incidence according to economic groups, the community being naturally divided, in a fairly clear cut fashion, into several sections manifesting distinct and contrasting characteristics from the point of view of social and economic status.

The organization in Framingham has outlined the community for this purpose into seven districts. The general status of these districts may be most brifly summarized as follows:

District I.—Lower middle class: individual workers; Irish and Irish-American race stock; hygienic conditions fair.

District II.—Middle and upper class: American; hygienic conditions good.

District III.—Industrial workers: Irish-American and a few foreign born; hygienic conditions fair to poor.

District IV.—Industrial workers: foreign born Italians; hygienic conditions poor.

District V.—Upper class: Americans; hygienic conditions good.

District VI.—Lower middle class: industrial workers, Irish-American and French-Canadian stock; hygienic conditions poor.

District VII.—Rural: American stock; hygienic conditions good.

On the basis of these districts the following distribution of disease as discovered in the examinations will be of interest.

Total Morbidity

For the community as a whole, with a definition of illness that included all types of disease and defect of a serious or minor character requiring medical or dental advice or treatment, the incidence rate was 77 per cent of the total number examined. For this total factor the districts were classified as follows: District I, 77 per cent; District II, 68 per cent; District III, 79 per cent; District IV, 79 per cent; District V, 77 per cent; District VI, 83 per cent; District VIA, 72 per cent. The districts if arranged in order of increasing disease incidence would fall as follows: II, VIA, V, I, III, IV, and VI. It will be noted that the districts with the best hygienic and economic conditions have the lowest rates, the middle class District II, the superior rural section, and the high class Section V taking first place. The foreign born section and the industrial sections have the highest disease rates.

From this evidence, as far as it goes, we may conclude that general morbidity seems to show an increasing incidence as economic welfare decreases. To that extent the Framingham evidence lends support to the general assumption that sickness may be closely correlated with income and economic welfare.

The Incidence of Tuberculosis

On the other hand, when we come to the study of tuberculosis incidence, it is found that different conditions apparently prevail. For the group as a whole the incidence of tuberculosis, including active and arrested cases, was 2.15 per cent. The district rates were as follows: District I, 2.76 per cent; District II, 2.74 per cent; District III, 1.65 per cent; District IV, 1.54 per cent; District V, 2.66 per cent; District VI, 2.60 per cent; District VIA, 2.22 per cent. For tuberculosis, the districts arrange themselves in order of increasing tuberculosis incidence as follows: IV, III, VIA, VI, V, II, and I. Here we find the section with the poorest hygienic conditions and the most congestion, but with a predominant Italian race stock, presenting the lowest rate! Further, the section with the best general residential conditions in Framingham (II) presents next to the highest rate. The highest rate of all is found in a district with fair economic and hygienic conditions, but with a heavy mixture of Irish race stock. From these findings it would appear that, as far as tuberculosis is concerned, we must look for determining factors other than economic and sanitary conditions. It is apparently true that race stock, under these circumstances, outweighs all other factors.

Tuberculosis Incidence by Race Stock

In Framingham the numbers examined for most of the nationalities reached were too small to be of any general significance. This, however, was not true for the three most prominent nationalities; namely, American, Italian, and Irish. Bearing in mind that the incidence for the group examined as a whole was 2.15 per cent, it is of interest to know that the rates for these three nationality groups were as follows: American, 2.58 per cent; Italian, 48 per cent; Irish, 4.85 per cent. This great contrast in tuberculosis incidence when racial groups are compared seems to bear out the assumption made previously that the race stock factor may at times at least assume an importance considerably greater than the most clamorous hygienic and economic conditions. It will be remembered that the Italians living in District IV are among the poorest class in the community, and without question are surrounded by the worst hygienic conditions. Yet they show only about one-tenth as much tuberculosis as their more fortunate, hygienically and economically, Irish brothers!

Tuberculosis Incidence by Income

In the Framingham work, the families in which tuberculosis occurred when classified according to income groups showed relative rates of family infection as follows: Under $1,200, 4.3 per cent; $1,200 to $1,800, 5.1 per cent; $1,800 and over, 2.7 per cent; unknown income, 7.2 per cent. In discussing these findings, Framingham Monograph No. 4 on the "Medical Examination Campaign" may be quoted as follows:

"While the figures here are perhaps too small to be used as a basis for final conclusions, there is little to indicate that the economic factor is a predominating and absolutely determining one in

the incidence of tuberculosis. The results as discussed previously would indicate a similar discrepancy between these findings and the ordinarily accepted view regarding the relationship of income to tuberculosis incidence. As was pointed out, the poorest section of Framingham, with Italian race stock, had the lowest rate, while one of the highest rates was found in the best residential section of the community. Apparently other, perhaps less tangible, factors are to be looked for."

Aside from the fallacy in popular conception which these findings would apparently disclose, what is the significance of this, from the point of view of family income? Does it not mean simply that it costs more for Irish families to *live* than it does for Italians? May it not be that we must grade our income groups to some extent at least on the basis of race habits and race stock? Certainly we cannot ignore these factors when planning a "living wage."

As a matter of fact while the most ordinary environmental factors appear to be purchasable for the same amount of money for everybody, in reality they are not so. The negro in the North cannot, for the same amount of money as the white, buy as good medical, dental, and obstetrical care, for the reason that he labors under race and social disabilities and lacks the facilities of group organization. If the Italian can stand more hardships than the Irish and still be free from disease and able to promote health, this simply means, for the Irish, that they will have to spend more money than the Italians to get equally effective (for them) environmental conditions. This means that a living wage for one race is not necessarily a living wage for another.

In the consideration of the vigor and vitality of a people, all elements, material, mental, and social need to be considered.

The greatest hope and at the same time the greatest hindrance in any health program is in the attitude of the people themselves.

We must admit that we cannot put over "health for health's sake," but must fall back on emotional appeal to make men desire to really live, and to value health as a factor essential to the adventure of life.

We succeeded in making men eager to be fit to fight; how can we make them eager to work and live?

Not forgetting these differential factors, what are the things which all families must have if they are to live adequately and safely from the point of view of the sanitarian? As stated previously, this problem has a negative and a positive phase, a preventive and creative aspect. We may classify the essentials of adequate sanitary living as follows:

Every family should have at its command facilities and conditions that will ward off unnecessary and preventable disease. These essentials are as follows:

(a) *Proper Physical Environment.*—Because communicable disease is largely a matter of human contact, the sanitarian should insist on proper housing, adequate equipment for personal cleanliness, the elimination of congestion, sufficient light, heat, and ventilation.

(b) *Essential Living Materials.*—These would include such items as clothing, food, and fuel. The sanitarian must also here take into consideration the educational facilities available in the community regarding the use of these materials. A living wage for a family properly instructed regarding the selection and use of food, for instance, may not be a living wage for the family that does not have the advantages of the educational opportunities involved herein.

(c) *Professional Care.*—The living wage must include funds sufficient for medical and dental care, nursing, and essential hospitalization.

(d) *Anti-Stress Factors.*—From another point of view, it is essential for any family, if disease is to be prevented, that they be able to take advantage of the best working conditions. This cannot be done if the income is inadequate; if the individuals are, therefore, subject to long working hours, inadequate rest, excessive over-time, and other elements of industrial strain. This is perhaps of particular importance in the field of tuberculosis. Recent work in Framingham and elsewhere has indicated the existence of a large group of arrested tuberculosis case, most of whom are working and *can* work under decent economic conditions, and if not exposed to excessive industrial stress. As a matter of fact, whether we belong in the arrested tuberculosis group or not, this applies to most of us, and we must have an income which makes possible the avoidance of excessive strain if a breakdown is to be warded off.

It is helpful to look at the wage of the worker as something which he purchases with time and with effort, either mental or physical. A man with a great deal of over-time might secure an income as a laborer of $50 to $75 a week, but the probability would be that he actually could not afford to spend his labor for that wage. Conse-

quently, no matter how much he "earned" he would not be receiving a living wage, for living would be impossible. Similarly the man who works at a hazardous trade and who, say through lead poisoning, acquires a permanent physical handicap in early maturity, is spending more for his wage than he can afford, no matter how much he is paid.

Means for Creating Health

On the constructive side, the family income must make possible an adequate amount of recreation, leisure, and education, if real healthful living is to be possible. The worker must have these things if he is to have happiness. Happiness is largely ignored because it is imponderable, but the worker must be able to buy it. Two things are essential to his happiness. He must have an adequate income to purchase leisure, recreation, and education, and he must have an occupation which is at least tolerable; if possible, joyous. This the miner and the lumber camp worker, for instance, working in isolated and poorly equipped environments, cannot do. Under these conditions a discussion of a living wage is out of the question. No money wage is sufficient to be called a living wage if the worker must live in a way that precludes his purchase of happiness.

Probably the sanitarian more than anyone else is conscious of the fact that the great majority of families live in a vicious circle. The circle is made up of alternating segments which might be labelled "poor wages," "poor health," "poor wages," " poor health," and so on. The simile of the circle is somewhat misleading, for this turns out to be more frequently a descending spiral into the regions of destitution. The problem for the sanitarian is how to find a place to break into that circle, and to put these families on the ascending stair in which the steps are "good wages," and "good health."

It is of course impossible to put these living essentials,—the things that must be secured for the average family before it can be put on the road to economic freedom, health, and happiness, —into money terms. It is, however, extremely important to realize the range of these elements and to keep them in mind when working, legislating, and agitating for an adequate income.

It must be evident that a higher standard of living must be established. A higher conception of living standards would in itself presumably do much to accelerate wage increases and to retard wage reduction. If the worker himself knew the value of happiness, and the necessity for leisure, recreation, and education, as prerequisites to happiness, this in itself would be perhaps the greatest stimulus to a living wage. All of us, including the worker, must come to realize that the definition of a living wage depends wholly on the definition of living; that understood, the wage will tend to take care of itself.

How Should Money Be Spent?

We cannot, however, face all of the realities in this situation if we do not admit that right here we are up against another and most serious problem. The problem, stated in practical terms, is how is one going to get the average worker to spend his money properly when he gets it? How can we be sure that he will really *live*, with the living wage? The trouble seems to be that a great many people are contented not to *live*.

We are willing to admit that the problems of disease prevention and health creation, for industrial workers and others are no longer in civilized communities problems of public health, but are problems of personal hygiene. Also, all are willing to admit that the rich do not practise personal hygiene. Therefore, why should the poor? Why should the living wage insure health practices? Those of us who have a living wage continue to over-work, to over-smoke, to over-drink until a recent memorable date, to lose sleep, and to take unnecessary risks of infections. Of course, there are some who would say that these things constitute living!

We must admit that an adequate income will not insure the practice of health, even if it does mean the possibility of health. Is it possible to get at this question from any other angle? Is it possible to attack this problem from the other end? If we cannot insure health by means of adequate income, can we insure an adequate income by means of health? Will an appreciation of health values result in an *effective* demand for income? It is the same staircase of "good wages," "good health," "good wages," "good health," previously discovered; but it may be that the first step is good health.

It is certain that the average person, given an adequate knowledge of personal hygiene, will not practise it. It is also certain that the average person, given a knowledge of personal hygiene, plus an adequate income, will not live according to higher health standards. Here the gain is a partial one at best.

Would an average community, given a knowledge of better health standards, provided with adequate community machinery for health, and assured of an adequate income, practise personal hygiene? It is probable that the facilities for community health would help materially, but still

it is believed that the majority would not yet be reached.

We cannot talk personal hygiene alone. The people will not listen. We must somehow supply a reason for personal hygiene while at the same time working for an adequate income to make its essentials possible.

Create a Will to Health

Who are the people in a community who practise personal hygiene? The woman who is proud of her appearance, and who is using it, consciously or unconsciously, to captivate the male, will starve herself to keep thin, will exercise when she hates it, and will practise many time-consuming and distasteful rules of hygiene. Why? Because she has an enthusiasm for her "job," and has recognized the importance of health as a factor in her success. She is not working directly for "income." If through successful marriage she gets a "living wage," and maintains it in marriage, it is incidental to her "work," just as it is inevitable if her "work" is a success.

To take another example, we have had in the American army during the war undoubtedly the greatest demonstration of personal hygiene ever made by any group of individuals. These men also had enthusiasm for their jobs. They had a *will to health* and were willing to undergo any of the drudgeries of personal hygiene and sanitation because of their intense interest in their work. The success of the venereal disease prophylaxis was a marvelous example of the efficacy of the enthusiasm of good working morale.

How does this apply to every day life, and to the problem of the living wage for the average family? We succeeded in making men eager to be fit to fight; how can we make men eager to be fit to work and live? It simply means that we must create in the average individual an enthusiasm for his work, or at least we must make possible this enthusiasm. We must give vent to the instinct for workmanship. We must show the need for fitness, and must make real the necessity for health.

This enthusiasm for the job probably depends on the proper adaptation of the man to the job and the participation of the man in the realities of his work, whether through management sharing or what not. The average worker will then see as the American soldier saw, the need for health. His working enthusiasm, and his will to health, will do more than anything else to give him the strength, virility, and above all, the reason for demanding a living wage.

The order of events must then probably be, given a normal community, the establishment, first, of a higher standard of living; then the dissemination of knowledge regarding personal hygiene; then the organization of the community to make health possible; and then the creation of happiness, enthusiasm, and morale in every day work. Only in this way can we hope for an adequate income and *its effective use.*

One Factor in Real Living

It must be remembered that we are all creatures of instinct, more or less. It must be remembered that nothing in human affairs is ever initiated or vitalized on an intellectual basis. We must find an outlet for dormant instinct, and we must supply the emotional appeal. We must admit that we cannot put over "health for health's sake." We must fall back on the creation of the will to be healthy.

From the point of view of the sanitarian a living wage is of little importance unless those who receive it are going to live well. This they are not going to do unless they secure a living wage because they have a will to live well. If this force can be gotten into the mass of men, no power on earth can prevent them from getting the fundamental pre-requisite to real living,—a living wage.

Health is after all merely one factor in real living; yet if man can be filled with an impulse to live and to serve as a more adequate medium for the expression of the vital force in the universe, he will demand, and without question obtain, a wage sufficient to purchase health, as well as any other purchasable factor essential to the adventure of life.

NATIONAL CODE FOR HEAD AND EYE PROTECTION

During the past two years there have been under consideration plans for the development of national industrial safety codes. Upon invitation extended by the Bureau of Standards, Department of Commerce, the National Committee for the Prevention of Blindness has actively cooperated in the preparation of a tentative draft of a national code for head and eye protection.

These preliminary conferences brought about the appointment of the following Committee of the American Society of Safety Engineers for the purpose of cooperating with the Federal Bureau of Standards and the American Society of Mechanical Engineers in the formulation of a national industrial safety code on head and eye protection:

G. E. Sanford, supervising engineer, all plants of General Electric Company in United States, chairman; Gordon L. Berry, field secretary, National Committee for the Prevention of Blindness; George M. Douglas, safety engineer, American Smelting & Refining Co.; George T. Fonda, safety engineer, Bethlehem Steel Company; T. P. Bradshaw, Roselle, N. J.

As the result of a meeting held November 18, 1919, recommendations were forwarded to Washington which it is hoped will meet with general approval and result in the perfection of this Code to the point where it may be suitable for general application by industrial commissions and others having legal powers, as well as by private plants and casualty insurance companies.

MEDICAL SERVICE IN HOTELS

By E. M. STATLER, President, The Hotels Statler, Inc., Buffalo, N. Y.

When the Hotel Pennsylvania, the largest hotel in the world, was opened in New York early in 1918, it is probable that no department had received more exacting attention than that centered upon the hospital. This was in line with notable developments in the welfare work which had at an earlier date been inaugurated in the Hotels Statler in Buffalo, Cleveland, Detroit, and St. Louis, and

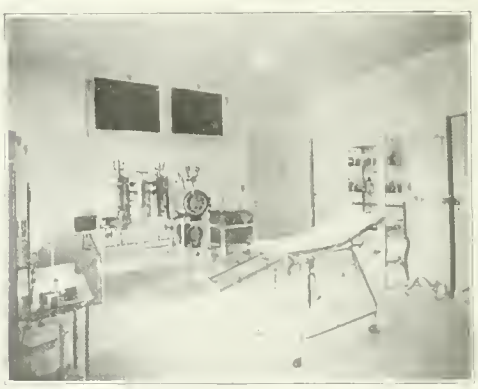
The entrance foyer to the medical department of Hotel Pennsylvania is characterized by straight lines, simplicity in furnishings and arrangement, and sanitary equipment.

The laboratory of the Hotel Pennsylvania medical department is planned for the expeditious handling of routine as well as special examinations. The most approved installation prevails throughout.

it seemed to be essential that the Hotel Pennsylvania should be provided with a fully equipped and admirably conducted hospital just as had been in successful operation in the other Hotels Statler.

In establishing these several hospitals the object has been to make health of the employees the first consideration, and to provide for them the best of medical attention whenever they needed it. There was at the same time, however, the plan to provide for the care of such guests as might need medical attention while stopping at

The most up to date mechanical appliances, complete in every detail are provided in the treatment room equipped for ear, nose and throat work.



Nothing is omitted from the operating room of the Hotel Pennsylvania that is provided for major emergency work in any first class hospital. Besides the operating room there are available an emergency ward, and x-ray room and provision for the most complete scientific records.

any of the hotels of the Statler system. Each hotel, therefore, has its special hospital, and all of them are on a par with that established at the Hotel Pennsylvania. Interest is centered at this time upon the latter because of its comparative newness.

Personnel and Equipment

The medical service in the Hotel Pennsylvania is administered by two doctors, one whole-time physician and one on call. Four trained nurses are in constant attendance. The operating room is perfect in every detail, and it compares favorably with the operating room of any hospital in the country. Besides the operating room there are an emergency ward, an x-ray room, a pathological laboratory, a record room, and a special treatment room with the necessary apparatus for eye, ear, and nose and throat work. Separate consultation rooms are provided for employees and guests.

The hospital is centrally located on the tenth floor of the hotel. It is fitted throughout in white; the walls, floors, and the operating room are lined entirely in white tile. A daily clinic is held for employees for a period of two hours, and it handles on an average of fifty to sixty cases a day. The hospital is open at all times for

inspection. Many visits are made by people interested, and it has been inspected by social welfare workers from all parts of the country.

Compensation for Care

While the guests at the hotel are required to meet the cost of such medical service as they receive, this service, with its doctors, nurses, and all its equipment provides free medical care to every employee of the hotel and to every member of the employees' families if their financial circumstances demand it.

The time and services of one trained nurse are devoted exclusively to visiting the homes of the different employees and giving such medical assistance and advice as may be deemed necessary. The whole scheme of this complete and free medical service to the employees is a part of the policy of the Statler system. Just as a satisfied guest is our best advertisement, so do we consider that a satisfied employee makes for efficient and satisfactory service.

New President of McGill

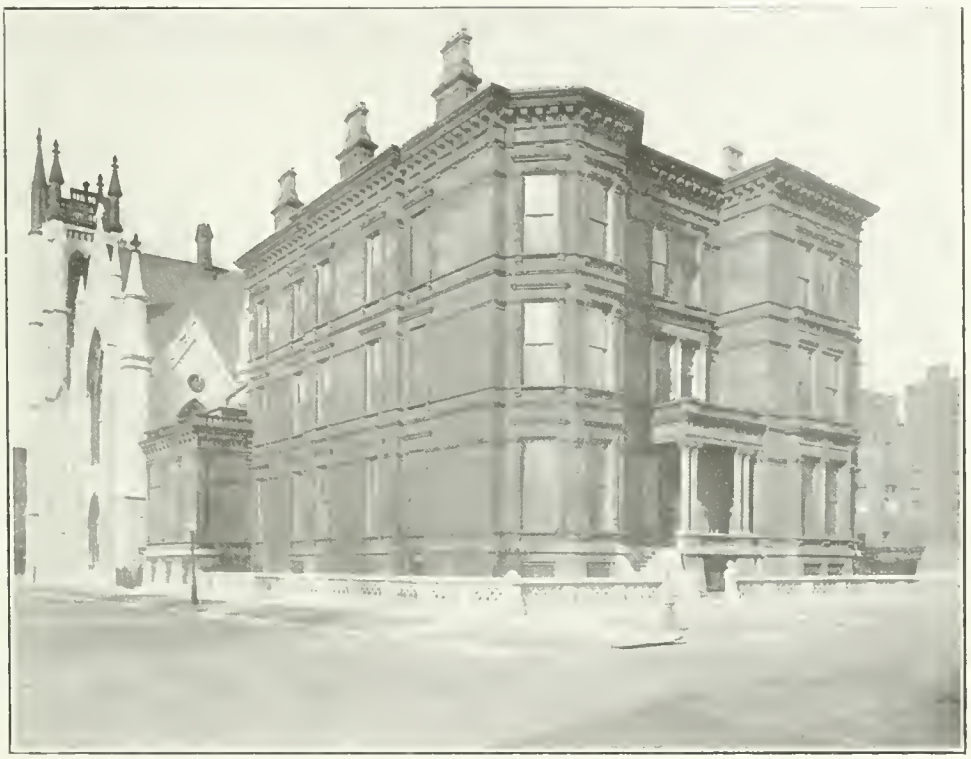
Sir Auckland C. Geddes, M.P., Montreal, who served during the war as Minister of National Service and Reconstruction, and President of the Local Government Board, formerly professor of anatomy at the Royal College of Surgeons, Ireland, has been elected principal of the McGill University.

Clinics for Practitioners

A series of medical, surgical, and special clinics is to be provided by the staff of the University Hospital, Ann Arbor, Mich., for the purpose of enabling practitioners to keep abreast of important developments in medical science. Cases having special difficulties will be demonstrated, and the schedule so arranged as to make the teaching facilities easily available to busy members of the profession.

THE HIGH COST OF LIVING

The Bureau of Labor Statistics announces that furniture and furnishings and clothing increased in price more than 139 per cent from 1913 to October, 1919. Food increased in price in that period more than 80 per cent, and housing increased 17.75 per cent, while fuel and light went more than 45 per cent over the 1913 average. The average increases for the family budget for all items amounted to 82.1 per cent. Figures are based on investigations conducted among 12,000 families in ninety-two localities.



South and west exposure of the new administrative home of the American College of Surgeons in Chicago, at Cass and Erie Streets, which was donated by patriotic citizens.

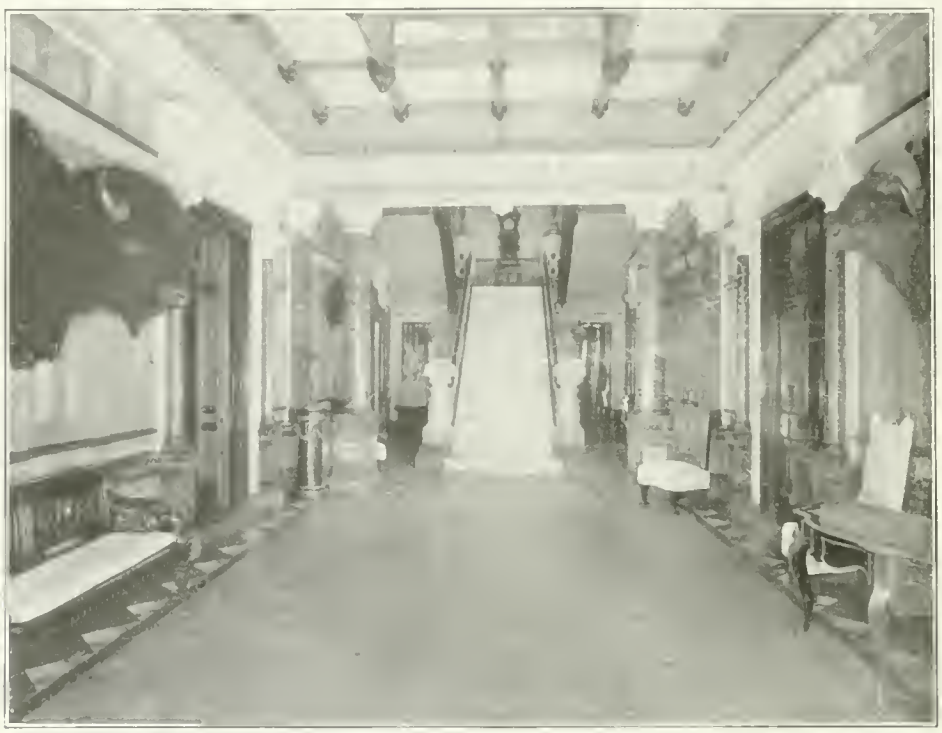
NEW ADMINISTRATIVE HOME OF AMERICAN COLLEGE OF SURGEONS

The administrative home of the American College of Surgeons has been officially located in Chicago. At the twentieth meeting the Regents of the College accepted as a gift from Chicago citizens the building and site of one of the most dignified and costly residences of the city. The selection of Chicago as the headquarters of the college was determined by a vote of the Fellows of the college.

The location of the building on the corner of Cass and Erie streets is within walking distance of the loop district, which makes it of easy access to visiting surgeons.

In construction the building is fireproof and the Bedford stone of which it is built emphasizes its Elizabethan architecture. The interior is finished entirely of hardwood and marble, the central staircase being of marble. The residence was built by Mr. S. M. Nickerson, former president of the First National Bank, Chicago, and is probably the finest building used by any medical society in the world.

The citizens of Chicago who cooperated with the Fellows of the college in making the gift include: James A. Patten, Robert F. Carr, Charles H. Wacker, S. B. Chapin, Edward F. Swift, Frank G. Logan, Edward B. Butler, J. Ogden Armour, T. E. Donnelly, William V. Kelley, William Thorne, Julius Rosenwald, Edith R. McCormick, C. H. McCormick, State Street Association, William Wrigley, Jr., William O. Goodman, Illinois Steel Company, Edward Hines Lumber Company, G. M. Reynolds, George E. Scott, Charles L. Hutchinson, Congress Hotel, Keith Spalding, R. T. Crane, Jr., M. A. Ryerson.



Lower entrance hall in the Nickerson mansion, which will form the medical hub of the world when the American College of Surgeons moves to its new quarters in Chicago.

GOVERNOR OF NEW YORK MAKES HEALTH RECOMMENDATIONS

In his inaugural address, as reported in the New York *Evening Post* of January 7, Alfred E. Smith, in urging the necessity for extending facilities for the conservation of health, said:

"I am informed that competent medical advice in the rural districts is becoming more and more difficult to obtain, owing to the tendency of physicians to concentrate in the centers of population. The country districts are in many instances practically abandoned, and earnest efforts to persuade physicians to go into these districts have been largely without result. The time has, therefore, come when there should be some plan of reorganization of health administration within the counties themselves under the supervision of the state health authorities.

"All the problems relating to public health must be kept uninfluenced by any political considerations or policies. Just as your honorable bodies have shown great generosity and sympathy with the purpose of the Department of Education, I would urge that the Department of Health receive a liberal share of your attention. The state can make no more profitable expenditure than that wisely made in public health education and in advancing public administration. It is essential for future progress that the careers open to physicians in the public health service should be made attractive and that the compensation of health officials of all kinds should be more adequate to the service which they should be required to render to the public. In this way only can the best qualified men be attracted to the service and the best results for the state be attained.

"As a practical measure, the state should be redistricted in regard to health matters, so that each community could support a proper public health administration. There should be established throughout the state an adequate system of public health centers, in conjunction with local health activities, where the necessary public health supervision can be provided for all classes of the population,—for the expectant mother, the infant, the little child, the young adult, and the older men and women of our population.

"The state should subsidize the local health efforts and thus bring about a coordination of private and public health facilities so that every health center could command the services of a full-time health officer and the necessary public health nurses. Public health laboratories should be maintained in each of the larger cities where necessary work may be undertaken for the counties and the important diagnoses of infectious diseases made. Many diseases are insidious at the onset, and their subsequent course may be prevented if the condition can be discovered sufficiently early to administer relief successfully.

"I would urge most liberal provision for the Department of Health. Knowing the all too ready tendency to consider expenditure for health protection non-essential, the state must be prepared to step in and through protective and constructive measures, meet the situation and maintain our citizens at the highest pitch of their health efficiency."

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L. HOFFMAN, M.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

THE RESPIRATION CALORIMETER AND ITS POSSIBILITIES

THE development of new things in medical progress hinges to a great extent upon the development of technical measures. The study of basal metabolism has advanced almost *pari passu* with the improvements in the ease of handling the respiration calorimeter. Remarkable work has been done, particularly in Boston and New York, in the last few years on the basal metabolism in various conditions; and the promise is for an even wider range of results from the application of Benedict's new and comparatively simple portable respiration apparatus.

Perhaps it would not be amiss to answer the question often put to the editor as to exactly what is meant by basal metabolism. The term is used to describe the actual fundamental metabolism of the body completely at rest and starving, which means the actual energy requirements for those vital processes which never cease. It has been found that normal basal metabolism varies with the square surface of the body, and DuBois has described a formula for easy calculation of body surface on the basis of height and weight. The estimation of oxygen consumption and carbon dioxid excretion furnish the basis for calculation, and with the calorimeter it is comparatively easy to measure both the oxygen consumed and the carbon dioxid excreted. Quite recently, J. H. Means and J. C. Aub[1] have published a splendidly complete article on the basal metabolism in exophthalmic goiter, which for the first time presents work on patients who have been followed before, during, and after various kinds of treatment. The paper is based on a study of 345 metabolism observations on 130 patients. A comparatively large series of normal controls was studied, including such things as diseases of the nervous system, pernicious anemia, Raynaud's disease, diabetes, and obesity; and, although there were slight variations from normal in the basal metabolism, the actual figures are quite different from those found in exophthalmic goiter.

Thirty-three cases are included in the group sent to the authors for differential diagnosis. The studies show that "most patients with goiter without clinical signs of thyrotoxicosis have a normal metabolism, and that such cases do not subsequently become toxic. The metabolism determination, therefore, seems to be an excellent means of differentiating toxic and non-toxic goiters. . . . In cases with suggestive symptoms, those patients with a normal metabolism do not subsequently develop exophthalmic goiter, while those with an elevation oftentimes do. In this class of cases, therefore, the metabolism determination appears to differentiate between true hyperthyroidism and simple neurasthenia, and makes possible a far earlier diagnosis of exophthalmic goiter than would the clinical picture alone."

Fifty-five cases of exophthalmic goiter were studied. These patients were studied both clinically and from the standpoint of the metabolism. Furthermore, they were studied before and after

[1] Means, J. H., and Aub, J. C.: Arch. Int. Med., 1919, xxiv, 645.

various kinds of treatment and for a period in some instances of several years. The basal metabolism on all exophthalmic goiter patients, as has previously been shown, is considerably elevated over the normal, an elevation which is likely to be anywhere from 25, 40 or even 90 per cent above normal. Since a quantitative determination of the excess basal metabolism is possible, and since this same quantitative determination can easily be made at various stages in the course of the disease, we have at our disposal a quantitative method of measuring therapeutic efforts. The authors applied this principle to the study of the effect of rest, quinin hydrobromid, Roentgen ray, and surgery; and, although at times it was difficult to differentiate the various factors that played a rôle in the ultimate result, the statistics offer almost mathematical proof and point to almost inevitable conclusions. Rest from one to three weeks, for instance, shows an average reduction of metabolism from +81 per cent to +67 per cent; this drop reaches a certain level and stays there, and in not a single patient was the metabolism brought within normal limits by rest alone. This statement must be modified by the fact that no experiments were performed on patients enjoying rest for months or years. Quinin hydrobromid apparently has no greater effect on metabolism than has rest alone.

The effect of the Roentgen ray is very striking. The average metabolism before treatment was +63 per cent; after one or two treatments there was a reduction to +52 per cent for the group; after six or seven treatments there is a greater drop and, finally, two or three years after the fifth treatment, the group average metabolism is only +13 per cent, and "all the patients are leading normal lives."

The effect of surgery was studied in a similar way. In the series operated on the average metabolism was +46 per cent. During the first fortnight after operation, metabolism fell to +21 per cent, with a secondary rise after the fourth month after operation, followed by a progressive fall until in the third year the average is +13 per cent, and "all patients are back leading normal lives." It will be seen by comparing the surgical and the Roentgen results that the ultimate results are the same, but that with the Roentgen ray group improvement is gradual and progressive. Also, it will be noted from the figures just quoted that the Roentgen ray group had a higher average toxicity than the surgical group, the comparison being 63 per cent, against 46 per cent. The authors believe, on the basis of these figures, that the Roentgen ray therapy of exophthalmic goiter is to be preferred to surgery, inasmuch as the therapeutic end results apparently are the same and all the dangers incident to surgical procedures are eliminated. Of the nine known deaths occurring in the original series, five were directly the result of surgery. One patient, after prolonged Roentgen ray treatment, finally died of exophthalmic goiter, one after having been apparently cured by operation, one after an apparent cure by the Roentgen ray, and one after failure to improve materially under Roentgen ray therapy. The average duration of improvement in the Roentgen ray group up to the spring of 1919 was about five and one-half years, while that of the surgical group was three and one-fourth years.

The clinician will immediately ask if any relationship exists between these studies of basal metabolism and the clinical findings. The authors forestall this question by charts which show that in about 60 per cent of the cases there is a close parallelism between pulse and metabolism, and in the remainder a certain degree of parallelism. There is, however, but little relationship between metabolism elevation and pulse elevation in the individual case. However, there is no definite relationship between body weight and metabolism curve, nor could any constant relationship of blood sugar curve to end result be demonstrated.

Answering the question as to the value of metabolism as a guide to treatment, the authors conclude very definitely that "not only should the Roentgen ray be tried first in the management of exophthalmic goiter, with the idea that it may be sufficient to cure the patient, but also because if not alone sufficient to cure, it may render subsesequent operation safer and more likely to be followed by good end results. Surgery, we believe, should be employed with conservatism, and usually only after the Roentgen ray and other medical measures have failed. We also believe that after operation, if the metabolism remains elevated, the Roentgen ray should again be employed." The authors also believe that Roentgen ray treatment of thymus is quite as important as that of the thyroid.

Is there any prognostic significance in these metabolism studies? A study of the relation of pulse curve to metabolism curve shows two distinct types: (1) those with an extreme tachycardia and a moderate metabolism elevation, and (2) those with an extreme metabolism elevation and a moderate tachycardia. The end results show that the patients of Type 1 would compare about equally well with surgery or Roentgen ray alone, or with surgery preceded by Roentgen ray treatment; while with Type 2 surgery alone gives poor results, the Roentgen ray alone may cure,

but the Roentgen ray followed by surgery may be necessary in the more resistant cases. Four of the five patients dying following operation belonged to Type 2.

We have practically given the authors' conclusions in the body of this review. It seemed to us in reading this very clear cut piece of clinical investigation that the authors have presented one of the most important studies on the differentiation and treatment of exophthalmic goiter that it has ever been our pleasure to read.

EDITOR.

RECENT INVESTIGATION IN FILTERABLE VIRUSES

THE first filterable virus ever investigated was that causing a parasitic disease of plants. Since this time it has been shown that a virus can be obtained from a number of diseases which can be filtered through a Berkfeld or Chamberland filter, and the filtrate, when inoculated into human beings or some species of animals, will reproduce the disease. Among these diseases are yellow fever, poliomyelitis, and rabies. Some years ago Noguchi developed a special bacteriological method whereby he was able to cultivate an extremely minute globoid body from filtrates of poliomyelitis material, and with subcultures many generations removed from the original, reproduced the disease in monkeys and also recovered the globoid bodies from them. It is the belief of Noguchi and Flexner that this globoid body is the cause of poliomyelitis. Noguchi has since successfully cultivated another filterable organism, also a globoid body, from rabies.

Although it has been known from the work of Reed and Carroll that yellow fever is caused by a filterable virus, it is only recently that Noguchi has demonstrated that this virus can be cultivated and has reproduced the disease by inoculation of the cultures in animals. This organism belongs to the genus *Leptospira* and is, therefore, not a globoid body.

Nicolle and Lebailly[1] were the first to publish experiments which seemed to show that there can be obtained from the nasal secretions of influenza cases a filterable virus which will cause symptoms, at any rate similar to influenza, when transmitted to normal individuals and to a few monkeys.

Since this time, two groups of investigators have published quite a bit of experimental evidence to demonstrate not only that a filterable virus is the etiology of influenza, but that this filterable virus can be cultivated by a modification of Noguchi's method for growing the globoids of poliomyelitis, and that globoids constitute this filterable virus of influenza. These two groups are Gibson, Bowman, and Connor[2]; and Bradford,[3 5 6 7] Bashford,[4 5 6 7] and Wilson.[5 6 7]

Their work was done independently of one another and was carried on at about the same time and published almost simultaneously. It is most unfortunate that Major Gibson lost his life from influenza contracted when he was overworking in his laboratory in this investigation.

The culture medium devised by Noguchi consists of a piece of sterile rabbit kidney placed in the bottom of a tall, narrow tube to which are added ascitic fluid and inoculated material. The contents are then over-laid with a layer of sterile paraffin oil or vaselin. The two groups above mentioned used modifications of this method. Their transmission experiments to animals and their cultures must be considered very seriously, and are certainly at least extremely suggestive. The difference between experimental influenza in animals and in human beings is so marked, one must necessarily feel that there is an element of doubt until this work is further confirmed and amplified.

Bradford, Bashford, and Wilson[5] then studied not only influenza, but quite a number of other diseases, and have published extensive articles on influenza and infectious polyneuritis, and have also published preliminary reports on a filter-passing virus recovered from infectious polyneuritis and *encephalitis lethargica*, trench fever, nephritis, and rabies. From each of these diseases they have secured evidence leading them to believe that they are caused by globoid bodies which are similar to one another, and which they were able to cultivate by a modification of Noguchi's method and with cultures reproduce the disease in animals. They believe that in these six diseases they have satisfied Koch's four postulates. There is a considerably larger group in which they consider that they have as yet only

1. Nicolle et Lebailly: Compt. Rend. Acad. Sci., Paris, 1918, clvii, 607.

2. Gibson, H. Graeme, Major, R.A.M.C.; Bowman, F. B., Major, C.A.M.C.; Connor, J. T., Captain, A.A.M.C.: The Etiology of Influenza. A Filterable Virus as the Cause, with some Notes on the Culture of the Virus of Noguchi's Method, Brit. Med. Jour., 1919, No. 3088, p. 331.

3. Bradford, Sir John Rose, Major General, K.C.M.G., C.B., F.R.S., A.M.S.: A Communication on a "Filter-Passing" Virus in Certain Diseases, with Especial Reference to Polyneuritis, Encephalitis, Trench Fever, Influenza and Nephritis, Brit. Med. Jour., 1919, No. 3046, p. 599.

4. Bashford, E. F., Captain, R.A.M.S. (T.): The Experimental Reproduction of Influenza, Nephritis, and Encephalitis by Inoculating Subcultures of the Isolated Virus, Brit. Med. Jour., 1919, No. 3046, p. 599.

5. Bradford, Sir John Rose, Major General, K.C.M.G., C.B., F.R.S., A.M.S.; Bashford, E. F., Captain, R.A.M.S.(T.); and Wilson, J. A., Captain, R.A.M.C.: Preliminary Report on the Presence of a "Filter-Passing" Virus in Certain Diseases, with Especial Reference to Trench Fever, Influenza, and Nephritis, Brit. Med. Jour., 1919, No. 3031, p. 127.

6. Bradford, Sir John Rose, Major General, K.C.M.G., C.B., F.R.S., A.M.S.; Bashford, E. F., Captain, R.A.M.S.(T.); and Wilson, J. A., Captain, R.A.M.C.: Acute Infective Polyneuritis, Quart. Jour. Med., xii, Nos. 45 and 46, 1919, p. 88.

7. Bradford, Sir John Rose, Major General, K.C.M.G., C.B., F.R.S., A.M.S.; Bashford, E. F., Captain, R.A.M.S.(T.); and Wilson, J. A., Captain, R.A.M.C.: The Filter-Passing Virus of Influenza, Quar. Jour. Med., 1919, xii, No. 47, p. 259.

got the bacteriological evidence, *i.e.*, a culture of virus. These are mumps, measles, rose measles, typhus, scarlet fever, hemorrhagic chicken-pox, and vaccinia. This large list includes most of the infectious diseases, the etiology of which is at present unknown or not completely proved. If these results are confirmed and turn out to be true, they will be a remarkable addition to medical knowledge.

Their presentation of their experiments and data is unusually clear, simple, and systematic; and their claims are stated in a self-contained manner, with entire freedom from extravagance. The articles of Wilson, especially, are models of scientific presentation. There is no flaw which can be discovered in the experiments they published. The only thing one can say is not a scientific criticism of their work, but simply that it is so tremendous it seems almost too good to be true.

Unfortunately, there has appeared a scientific criticism of the work of Bradford, Bashford, and Wilson by Arkwright.[8] As criticisms go, this is an extremely fair one, as the investigation was done with the aid and material furnished by Bradford and Wilson. Also, these two latter investigators append notes at the end of Arkwright's criticism.

It must be said that Arkwright's criticism, which is a very serious and fundamental one, does not necessarily vitiate the correctness of the contentions of Bradford, Bashford, and Wilson. It would seem that although Arkwright's investigation was a thorough one, the three workers criticized have a much larger material which must be considered than that investigated by Arkwright. Wilson admits that the cultures examined by Arkwright were contaminated and states at the conclusion of his note "that it has not been proved that a filter-passing organism has been grown in pure culture in any of the diseases for which the claim is made." One infers from this that Wilson believes that he has successful cultures but that he has not the organisms in pure culture. We expect that Wilson will report further on this subject.

It is of special interest, in light of the work reviewed above, that Loewe and Strauss[9] have recently reported in American publications the successful cultivation of a filter-passing, globoid organism, by the use of Noguchi's original technic, from the nasal pharynx and central nervous system of cases of *encephalitis lethargiea*. They have also reproduced this disease not only in monkeys but in rabbits by inoculation with cultures and with sub-cultures of the twelfth generation of this organism. They have recovered the same organism from the infected animals and again reproduced the disease with it. The illness of the animals is a remarkable counterpart of the disease in humans. The gross and microscopical lesions of the central nervous system are also identical with those found in cases of *encephalitis lethargiea*. It is believed that there can be no doubt but that this is the etiology of *encephalitis lethargiea*.

It was the good fortune of the reviewer to see the work, cultures, and preparations of Loewe and Strauss, and he is convinced of the correctness of their results.—W. T.

8. Arkwright, J. A., and Wilson, Capt. J. A., with notes by Sir John Bradford: A Criticism of Certain Recent Claims to Have Discovered and Cultivated the Filter-Passing Virus of Trench Fever and of Influenza, Brit. Med. Jour., Aug. 23, 1919, p. 233.

9. Loewe, Leo, Hirschfeld, Samuel, and Strauss, Israel. Studies in Epidemic Encephalitis (encephalitis lethargicus). Jour. Infect. Dis., 1919, xxv, 377, and New York Med. Jour., 1919, cix, 772.
Etiology of Epidemic (Lethargic) Encephalitis, Preliminary Note. Jour. Am. Med. Assn., 1919, lxxiii, 1056.

RECENT WORK BY W. W. HERRICK ON MENINGOCOCCUS INFECTIONS

HERRICK[1] has demonstrated and emphasized two new facts. The first is that meningococcus meningitis is undoubtedly caused, in a large percentage of cases, if not in all of them, by localization of meningococci in the meninges after having been present, for a short or long time, in the circulating blood. This was demonstrated in several ways. It was soon found, in the Medical Service at Camp Jackson that in the early stages of meningococcus meningitis a positive meningococcus blood culture was often obtained. The portal of entry was not found but is probably through the nasopharynx.

This led Herrick to perform blood cultures on many soldiers who reported sick, with more or less indefinite symptoms. It was, therefore, possible to make blood cultures on a large number of individuals in the early stages of numerous diseases, including meningococcus meningitis. It was found that a considerable number of soldiers, complaining simply of feeling sick, usually with fairly high temperature, sometimes with chills, but without any meningeal symptoms whatever, were found to have a meningococcus bacteriemia as shown by a positive meningococcus blood culture. In spite of serum treatment administered immediately, some of these individuals developed a meningococcus meningitis, confirmed by the presence of meningococci and leukocytes in their cerebro-spinal fluid. In some who did not recover, this was also confirmed at autopsy.

1. Herrick, W. W.: The Intravenous Serum Treatment of Epidemic Cerebrospinal Meningitis, Arch. Int. Med., 1918, xxi, 541.
Early Diagnosis and Intravenous Serum Treatment of Epidemic Cerebrospinal Meningitis, Jour. Am. Med. Assn., 1918, lxxi, 612.
Extrameningeal Meningococcus Infections, Arch. Int. Med., 1919, xxiii, 409.

Herrick also demonstrated that some of these cases with meningococcus bacteriemia, when given proper serum treatment, never developed meningitis or symptoms of meningitis, and never showed meningococci in the spinal fluid. Some of these cases died because of their meningococcus blood infection, and, at autopsy, showed absolutely no indication of meningitis.

The second and most important fact brought out by Herrick is that, because meningococci are present as a general infection in the circulating blood, intravenous treatment with anti-meningococcus serum is of even greater importance than intraspinal serum therapy. He emphasizes this point, but makes it clear that intraspinal serum treatment should also be administered in the usual way, *except* in cases with positive blood culture but no signs of meningitis, either clinically or in the cerebrospinal fluid. In this type of case, it is pointed out that lumbar punctures should not be repeated as the mere lumbar puncture with withdrawal of fluid may cause circulating meningococci to localize in the meninges and set up a meningitis.

The treatment evolved by Herrick is to inject large quantities of antimeningococcus serum intravenously at frequent intervals, and smaller quantities intraspinally at somewhat longer intervals. About 100 cc. are given intravenously every eight hours and 15 to 30 cc. intraspinally until the case shows marked clinical improvement or shows a negative blood culture and absence of meningococci in the spinal fluid. Herrick found that the average case requires from 400 to 600 cc. of serum by vein, and about 100 cc. intraspinally.

Herrick's statistics definitely show the value of this energetic form of treatment. It is believed that the importance of vigorous intravenous serum treatment cannot be over-emphasized. Undoubtedly one of the best, if not the best method of introducing protective antibodies into the cerebrospinal fluid, is by introducing the immune bodies into the general circulation, withdrawing large amounts of spinal fluid, and thereby allowing the antibodies to be secreted by the choroid plexus into the cerebrospinal fluid.

A number of very important accessory facts were learned in the course of Herrick's work. It was found that, unless antimeningococcus serum has an agglutination titer of from 1 to 200 or 1 to 400 by the United States Hygienic Laboratory method of performing this test, the serum is not efficient in therapy. Some commercial sera were found to conform to this criterion; others were not. Only those which conformed were used by Herrick. At present, probably to a large extent because of Herrick's work, it is believed that commercial sera are properly tested and can be relied upon. We now know, however, that there are a number of different types of meningococci, as demonstrated by workers at the Rockefeller Institute and also by workers elsewhere, especially Gordon and Tullock. It was found by Herrick that in some cases a serum, with a proper agglutination titer, was not efficient in treating a given case. He concluded that this was because the meningococcus causing the disease in the individual belonged to a type for which there were no antibodies in the serum used. He immediately changed to another potent serum, but preferably tested out the potency of his sera against the meningococcus from the resistant case and used the serum which best agglutinated the meningococci recovered from the patient.

It was also found that cases which developed a relapse and needed further intravenous treatment, were subject to serious anaphylactic reactions. This could be generally prevented by gradual de-sensitization, although sometimes it was necessary also to inject adrenalin hypodermically.

Herrick also found in his large series a few cases in which meningococci localized in the joints, pleura or accessory nasal sinuses without developing meningitis, but the most of them also showed a meningococcus bacteriemia.

There is only one point to which exception can be taken and that is merely one of terminology. The word "sepsis" is erroneously used, and bacteriemia should be substituted.

To sum up, one must realize the following:

That Herrick's work demonstrates the extreme importance of energetic intravenous serum therapy of meningococcus infections, whether already localized in the meninges or not. Herrick takes special care to state that the original intraspinal treatment as outlined by Flexner, Jobling, and their co-workers is just as important as pointed out by these investigators. He has added, however, that, while intraspinal treatment should be continued, massive intravenous treatment is of even greater importance.

This investigation is one of the best which has come from the military laboratories during the War, and the method evolved should be applied in civil practice in exactly the manner outlined by Herrick.

It is certain that new facts recently brought out, such as the separation of meningococci into several different types, adjusting the therapeutic serum to the type of meningococcus causing the infection, and Herrick's method of intravenous treatment, are of tremendous importance in the treatment of cases of meningococcus infection

and are an important step in our proper knowledge of treatment of this dreaded disease.

NEW TREATMENT OF SUPPURATIVE ARTHRITIS

FROM time to time, as our knowledge increases, we find that certain time honored conceptions of therapy must be relegated to the shelf of historic interest to make room for newer methods. The former method of treatment of acute suppurative arthritis has been recently replaced by one as diametrically opposed to it as any method could be. For years we have believed that the *sine qua non* of the treatment of acute purulent arthritis was immobilization; now we find that excellent results are obtained by active mobilization. For the last century splints were being devised to keep the joint from moving; now the literature is filled with lists of exercises. We still realize the necessity of good drainage but, instead of thinking that rest was essential for this, we believe that many of the good results obtained following mobilization can be attributed to the freer drainage obtained by this system.

The old treatment of septic arthritis is well standardized. The wound was drained and the joint immediately immobilized. Drainage was carried out by means of gauze, tissue, or the insertion of tubing, usually into the joint cavity, often through and through. The immobilization was maintained by splints, casts, or extension devices. To quote from some of the standard surgical texts:

Nicholas Senn in his "Practical Surgery" advises free incision, ample drainage (a picture showing through and through drainage is given), antiseptic irigation, moist compresses, and "immobilization of the limb in a useful position."

Rose and Carless in their "Manual of Surgery" say, "in the early stage (of acute arthritis) the limb must be elevated, absolutely immobilized, put into a position that, if ankylosis subsequently obtains, it may be of some use to the patient. As soon as the symptoms point to suppuration, the joint should be freely opened, while the fixation of the limb is maintained.

De Costa, in "Modern Surgery," gives for the treatment of acute suppurative arthritis the following: "The treatment in this form of arthritis consists in prompt incision, evacuation, antiseptic irrigation, drainage, an aseptic dressing, and immobilization. Cure is followed as a rule by ankylosis, but in cases treated early a movable joint may be observed."

The Willems treatment for acute suppurative arthritis is, in brief, as follows: Drain the joint, usually through two lateral incisions. As soon as the patient wakes, after the operation, start active motions. These active motions are continued at regular intervals, many times throughout convalescence. In a knee case, the patient is gotten out of bed as soon as possible and forced to walk. The enormous number of injuries to joints during the war gave Willems an opportunity not only to perfect his method of joint treatment, but also to present it to the profession and have it widely adopted.

As in every war injury, the cases were operated upon as soon as possible. By thorough débridement all infected material was removed. The joints were irrigated by a saline solution and rinsed with ether. Primary suture of the capsule, muscle, and fascia layers, and of the skin was performed whenever the operator felt that this could be safely done. The limb was not splinted. As soon as the patient awakened from the anesthetic he was made to move the joint. The active mobilization was kept up from that moment until the patient was discharged from the hospital.

By active motion Willems meant active motion in every sense of the word. In cases complicated with fractures, active motions were maintained if at all possible. Fractures of the condyles, of the metaphysis, injuries to the epiphysis, or to the capsule did not in themselves indicate any contra indication whatsoever. In the case of the knee joint every effort was made to have the patient walk on it at an early date, even the day after operation if possible. Of course, where the fracture or joint injury was of such a nature that displacement might be feared, care had to be taken; but, whether in bed or walking, the patient moved the joint himself by means of the muscles accustomed to move that joint.

Passive motion can not substitute for active. Passive motion will not prevent atrophy of the muscles, will not enable the patient to gain confidence in his ability to move the limb, and may actually injure the joint.

Willems emphasizes the fact that in order to obtain good results the active mobilization must be

---

Willems C.: Traitement de l'Hemarthrose et de l'Hydroarthrose Aigue de Genou par la Ponction Suivie immédiatement de la Marche Bull. Acad. Roy. méd. de Belge, Brux., 1900, xxiii, 469-483.

Mobilisation Active immédiatement pour les Plaies de Guére de Genou et du Coude. Bull. de l'Acad. de méd. Paris, 1917, lxxvii, 394-401.

Quelques Resultats de Traitement des Lésions articulaires par la Méthode de la Mobilisation active immédiate. Bull. et mém Soc. de chir. de Paris, 1917, xliii, 1784-1794.

Resultats fonctionels récents de la Mobilisation active immédiate dans les Lésions articulaires. Bull. et mém Soc. de chir de Paris, 1917, xliii, 2037-2039.

Présentations de Blessés atteints de Lésions articulaires traites par la Mobilisation active immédiate. Arch. de méd. et Pharm. milit. Paris, 1918, 346-355.

Présentations de Blessés Atteints de Lésions articulaire traites par la Mobilisation active. Comp. rend. confer. chir. interalliée pour l'étude de plaies de Guére. Paris, 1918, 187-197.

La Mobilisation active immédiate Méthode général de Traitement des Lésions articulaire. Arch. méd. Belges Bruxelles 1918, lxxi, 225-246.

performed in a definite, systematic manner. All motion pertaining to the joint must be carried out; extension, flexion for the knee; extension, flexion, rotation, abduction, and adduction for the shoulder. Each motion should be carried out as nearly as possible to the normal limit and kept up to the point of fatigue. After a rest of a few hours the motions should again begin. His patients were awakened once or oftener during the night to perform the exercises.

Patients had to be coaxed, commanded, urged, and wheedled, depending upon their willingness to cooperate, their desire to speed convalescence, and their natural courage or timidity. Where possible, group exercises or drills were performed, under a person qualified to give orders.

A septic condition supervening in a joint did not prevent active motion. The joint was drained, either through the original incision or through new incisions. In the case of the knee, Willems preferred bilateral incisions which were long enough to insure good drainage. No tubes or drains were inserted. The incisions had to be kept open from time to time as they showed tendency to close.

The treatment of a case admitted as purulent arthritis was similar; bilateral incisions, lavage, and active mobilization were employed, the incisions being left open. Drainage was found to improve with motion. At each step, in a case of septic arthritis of the knee, jets of pus would squirt out of the wounds. The general condition of these patients was found to be better than those treated by the immobilization method. They felt better, looked better, and the temperature reached normal much sooner. Active motion was not painful. Pain was experienced when the joint was displaced or when drainage was inadequate. Pain on motion developing some days after closure of a joint indicated an effusion into the joint, synovial fluid, blood, or pus. After this was drained off,—in the case of pus through reopening the wound or incisions as above mentioned,—the pain disappeared. In a purulent arthritis, pain and a limitation of motion occasionally developed as the joint healed, that is, as the suppurative process subsided and the joint became dry.

Willems and those who have adopted his methods claim extremely gratifying results. The convalescence is greatly shortened and the prognosis for a movable limb is very good. These startling results can be obtained in civilian practice as well. Willems' first reports on the treatment by means of active mobilization were in a case of hemarthrosis and hydrarthrosis. It is to be noted, however, that active mobilization can not be carried in a desultory fashion, but that the patients must be under careful supervision.

R. B. B.

Gunshot Wounds of the Joints. Med. Rec. New York, 1919, xcv, 953 and 999.

Treatment of Purulent arthritis. Surg., Gynec. and Obst., 1919, xxviii, 546.

Lee, B. J.: The Surgery of Joints. Surg., Gynec., and Obst., 1918, xxvii, 300-306.

Metcalf, C. R.: The Initial Treatment of War Wounds Involving the Knee Joint. Ann. Surg., 1919, lxix, 318-328.

Pool, 3. Jopson, J. H.: Treatment of recent wounds of the knee joint. Ann. Surg., 1919, lxx 266.

Cutler, Eliot C.: War Surgery Under Front Line Conditions. Ann. Surg., 1918, lxx, 695.

NUTRITION OF THE FETUS

A MOST noteworthy contribution to the question of the nutrition of the fetus recently has been published by the department of obstetrics and gynecology of Yale Medical School.[1]

Slemons, in collaboration with Morse, Bogert, Curtis, Morriss, and Standler, most carefully investigated the transition of non-protein nitrogen, urea nitrogen, sugar, fats, and lipoids from mother to fetus by a comparative study of certain chemical constituents in maternal and fetal cord blood. The chief importance of these investigations undeniably lies in the fact that they speak rather in favor of the mechanistic than the vitalistic conception of placental function.

The vitalistic theory assumes that the wall of the chorionic villi, as the result of the activity of certain enzymes present in the placenta, takes an active part in the placental interchange between mother and fetus. The mechanistic theory, on the other hand, regards this wall as a passive, semi-permeable membrane through which the exchange between mother and fetus occurs automatically as determined by the laws of osmosis and diffusion.

There can be no doubt that since the first paper of Hofbauer, medical literature shows a prevalence of contributions in favor of the vitalistic theory. This latter theory undeniably is more in accord with present biologic views, which regard the fetus, beginning at the very moment of fertilization, as a new individual which, according to Murlin, rather independent from the mother, is "capable, even in the face of difficulties, of looking out for its own nourishment at every step of its development."

Of necessity, the fetus can procure the nutritive material indispensable for its normal development solely from the mother. Furthermore, practically all investigations into the relation of the fetal to the maternal metabolism concur in the one deduction, that the substances required by the fetus for growth *qualitatively* do not differ from those required by the adult body. From

[1] Slemons, J. Morris: The Nutrition of the Fetus, Yale University Press, 1919.

this point of view the one of the two main practical results of Slemons' researches seems the more acceptable: There is no diet specifically adapted for the state of pregnancy; the prospective mother may exercise perfect freedom as anyone else in the selection of food. Women may and usually do follow the dictates of appetite after they become pregnant as safely as they did before.

The other, in practical application still more important, question in the interrelation of the two metabolisms during pregnancy, pertains to the *quantity* of fetal food requirements. This latter question stands in close relation to the ever-interesting problem of influencing the growth of the fetus by specific diets during pregnancy. This problem recently was discussed most exhaustively by Ehrenfest.[2]

He believes that the possibility of such an influence in the effort to retard fetal growth has never been established either by clinical observations in man or by experiments on animals and, in his opinion, the assumption of such an influence is incompatible with present biologic knowledge. He summarizes physiologic and biologic teachings of the day as follows: "Modern physiologists and naturalists regard the germ cell as an individual organism and not as a maternal body cell. The process of fertilization activates and stimulates in this cell an anabolistic, proteosynthetic function. Probably by means of chorionic enzymes the embryo secures the building materials necessary for its immediate growth and full development. The embryo's power of assimilating its required nutriment from the maternal tissues is essential in its biologic aim and purpose of perpetuating the species. The germ cell is not a truly maternal cell and, therefore, unlike other body cells, is not at the mercy of maternal circulation and general metabolism."

As previously stated, the present, more prevalent belief in the vitalistic function of the placenta is not shared by Slemons as the result of his own investigations. Nevertheless, a simple consideration will show that not even so radical a change of views concerning placental activity would militate against the force of Ehrenfest's deductions.

It must be conceded that in the present state of knowledge we believe that hereditary factors, probably by way of endocrine gland activity both in mother and fetus, in the main determine fetal development. If, as is generally believed, all the required building materials are available in the maternal organism, then this growth-controlling factor, which undeniably exists, exerts its influence chiefly on the quantity of the substances assimilated from the mother; and this factor, if hereditary in character, must functionate almost if not entirely automatically. Modern biologists seem inclined to regard chorionic enzymes as the peripherally active agents of this central, development-controlling mechanism (endocrine system?). But even if, as Slemons seems to show, chorionic villi are not endowed with such functional ability, still the existence of such a controlling center could not be denied. Therefore, it is not surprising that in spite of this essential difference of views concerning placental function, almost identical with Ehrenfest's conclusions, Slemons states in regard to the second practical aspect of the problem of fetal nutrition: "There can be no justification for measures intended to restrict the growth of the fetus for, when rigidly carried out, they tend to weaken the mother."

Ehrenfest emphasized that such mistaken attempts of retarding or inhibiting the normal development of the fetus by diet restrictions have no direct relation to the fact that persistent overeating might possibly, not by means of necessity, lead to abnormal fat growth in the fetus. "Conclusive evidence has been adduced that certain substances, present in the maternal organism in abundance or to a pathological degree, as a rule, are carried to the fetus," but "the transmission to the fetus of substances essential for its normal development proceeds automatically." Practically the same thought is expressed by Slemons: "She may be careful to avoid over-growth of the fetus, but should not adopt a diet so limited as to interfere with normal development." H. E.

[2]Ehrenfest, H.: Can Labor be Facilitated by a Specific Diet of the Mother During Pregnancy? Am. Jour. Obst., 1919, lxxx, No. 4.

THE FEEDING OF HEALTHY CHILDREN

We are naturally more used to preparing food for invalids than for normal appetites, says Marion Price in a contribution to the December issue of the *American Journal of Nursing*. Training the healthy child in the proper food habits is especially important to the well being of the child. During the first five years of a child's life its natural antipathy to anything except the feeding bottle must be overcome, and such other articles must be gradually added as cereals, soft boiled eggs, crackers, zweibach, bread and butter, spinach and orange juice. A child properly accustomed to a regular, plain diet will not be retarded in growth nor go to the other extreme of craving rich and unwholesome foods.

Specific diets are not suggested, but the fact is emphasized that the majority of children's ailments are due to improper feeding and that often a youngster is blamed for irritability and bad temper when in reality he is suffering from nervous indigestion caused by unsuitable foods. To prevent sickness and insure perfect health among children we must emphasize the necessity of good, wholesome food given at regular intervals under cheerful conditions.

THE MEDICAL ASPECTS OF HEALTH INSURANCE ADMINISTRATION

By E. H. LEWINSKI-CORWIN, Ph.D., Executive Secretary, The Associated Out-Patient Clinics of the City of New York

THE subject of health insurance has passed the period of academic discussion; it has become one of practical politics, and before long the proposed measure will become law in our more progressive states. It, therefore, behooves all those concerned in the matter to transfer attention from the bootless discussion for or against social health insurance to the administrative details of the proposed new measures.

SOCIAL INSURANCE SEEMS TO BE ASSURED

Social insurance does not mean socialized medicine but means that medical care shall be universally available.

The question of medical benefits must be defined on a basis that will be possible to carry.

Matters of administration must leave the physician free to use his own best judgment and his obligations in the service should be only of a professional nature.

Even the goal of universal medical care should not permit a lowering of any single one of the high tenets of the medical profession.

Of all the problems of administration, those pertaining to the "medical benefit" are most baffling, not only because of the intimate human relationships involved, but also because with the introduction of universal health insurance the foundations of the present day practice of medicine will be rearranged.

Clear Understanding Forestalls Difficulties

If, in the callow beginnings of social insurance on the Continent and in England, the importance of a clear understanding of the intricacy of administrative details had been appreciated, unfortunate developments associated with health insurance could have been obviated. Fortified by the knowledge of the shortcomings of the older schemes, we are in a position to draft legislation which will eliminate from the start the unsatisfactory features of its European precursors and which will constitute a distinctive American contribution to administrative policy in social welfare.

Fortunately for the proposed measure, the leaders of the American medical profession have exhibited from the beginning an acute and wholesome concern in the subject of health insurance. Appreciating the social importance of the proposal, and realizing that a purely negative or indifferent attitude toward it might lead to ill advised legislative enactments if the whole burden for their formulation were left to laymen not cognizant of the basic conditions of medical practice, the medical men, individually and through their organized bodies, have taken an active, frequently hostile, but invariably helpful, interest in the proposals submitted; and as the successive bills for universal health insurance are being introduced in the legislatures from year to year, they exhibit a truer understanding of the administrative difficulties involved and bear the earmarks of the constructive thought and criticism of the medical profession.

After a trenchant analysis of the laws in foreign countries, the Committee on Social Insurance of the American Medical Association offered at the annual meeting of the Association in 1917 the following fundamental demands which the medical profession should insist upon in health insurance legislation:

(1) Freedom of choice of physician by the insured.

(2) Payment of the physician in proportion to the amount of work done.

(3) The separation of the functions of medical official supervision from the function of daily care of the sick.

(4) Adequate representation of the medical profession on the appropriate administrative bodies.

Free Play for Spirit of Emulation

A brief explanation may make clearer the reasons for these demands. Freedom of choice of physician by patient, subject to the physician's willingness to serve, is not only fair to the patient with whom the personality of his physician counts for a great deal, and to the physician whom it protects against certain types of patients for whom he does not care, but it leaves the practice of medicine undisturbed and provides room for the free play of the spirit of emulation.

In order that emulation should not degenerate into cutthroat competition, two additional proposals were subsequently made by medical critics. One was to the effect that no physician should be permitted to have under his care more than a stipulated maximum number of families, this to be determined in a pragmatic way on the basis of experience under urban and rural conditions. This theoretically sound provision would probably prove difficult to enforce, and for this reason it was omitted from the last draft of the 1919 New York bill. The second very practical suggestion was that a minimum scale of fees should be initiated by the doctors through their county societies. Their scale then goes to the chief of the health insurance bureau, who is himself a physician, for his approval.

The Dread of "Contract Practice"

Of all the possible results of health insurance none is more feared by the medical profession than the ineffective and deadening "contract practice." They are apprehensive lest the efforts of the last two generations to raise the standards and morale of medical practice in America be obliterated by the injudicious introduction of a wholesale, cheap capitation basis of payment. It is stated that wherever it has been tried it has resulted in overwhelming the practitioners with unnecessary and trivial work, in depriving them of the stimulus and opportunity for scientific treatment, in divesting them of the dignity of their calling, and in jeopardizing the whole future of medical progress. The demand of the Social Insurance Committee of the American Medical Association, quoted above that payment be made in accordance with services rendered is but one of the safeguards which the medical men feel must be thrown around the system. Under the New York bill the physicians initiate the method of payment as well as the minimum fee schedule. By thus removing the fear of capitation payment and lodge practice, the profession is safeguarded in this important respect.

Duties of Physician Purely Professional

In order to obviate another of the inadequacies of the European systems, notably that of affording opportunities for malingering and valetudinarianism, the demand has been made that the responsibility for certifying to the illness of the insured be removed from the physician giving treatment, and placed upon a medical officer especially engaged for the purpose. In this wise the patronizing of "easy" physicians, observed in Germany and elsewhere, is done away with and the physicians are freed from all responsibilities except purely professional duties toward their patients. Here again the present day relations between physicians and patients remain undisturbed.

The administration of health insurance, dealing as it does to a large extent with questions of medical care and relief in its multitudinous forms and under a great variety of conditions, obviously calls for expert guidance and advice. With the shifting whims of democracies and their demagogues, often impatient of or openly inimical to experts, it is imperative that the vital interests of a great scientific profession, whose very existence under a universal health insurance law depends upon its intelligent administration, be amply and adequately protected by proper representation on all pivotal administrative boards and thus be safeguarded by precise legislative enactments.

Recognition of Medical Demands

All of these basic medical demands have been recognized and incorporated in one form or another in the bills introduced in the several states. Several additional safeguards were considered and added to the last draft of the New York bill. One was the substitution of a single state-wide panel for the many local panels of physicians. It was pointed out that a multiplicity of local panels creates boundaries for and artificial limits to medical practice, that patients in certain localities might be seriously inconvenienced by such limits, particularly with reference to the selection of specialists. Accordingly, a state-wide panel was recommended for incorporation in the law.

From this brief account it may be gathered to what extent the medical arrangement of American legislative proposals on health insurance have been moulded by the criticisms of the medical profession and, as a result of it, we shall eventually have laws which will indubitably prove to be infinitely superior to their European forerunners.

There are, however, at least two considerations which make the medical profession chary about health insurance, both of which can only to certain extent be safeguarded by statute.

Intelligent public opinion and a proper enlightenment of those who will benefit under the law as to the paramount importance of a high grade, conscientious, and scientifically conducted medical practice constitute the only safe reliance that the standards of medicine will not suffer should the cost of the medical service under the insurance law prove to be higher than the beneficiaries may anticipate. The medical profession consider it of prime importance that, before health insurance is adopted, those who will pay for it should clearly

understand the costs involved in securing adequate medical service on a wide social scale. The whole purpose of the law would be defeated if the medical service under it should suffer because of a parsimonious policy on the part of the insurance funds. And yet the cost, large as it be in the aggregate, does not seem to constitute an unbearably heavy burden when properly distributed. According to a recent computation made by a distinguished authority on matters of public health administration and hospital management, based, it is true, on rather too low units of cost, the expense of health insurance to the workman, including cash benefit, hospital care, maternity benefit for his wife, burial benefits, and other medical care for the family, amounts to $28 per annum. Other authoritative estimates place the cost considerably higher. The last draft of the New York bill excludes the dependent members of the family of the insured person from the benefits of medical care and this, of course, reduces the cost very materially. Whatever the cost may be, it should be clearly recognized beforehand, to obviate any "jump in the dark."

Medical Standards Must Not Suffer

There is a second consideration which must not be lost sight of: The relation of health insurance to "group medicine." Medicine has made great strides during the past generation. Specialism has come to stay and "group medicine" is the form of practice which insures scientific satisfaction to the physician and the greatest amount of effective service to the patient. No one physician can master all the details of the science and art of medicine and the intricate diagnostic and therapeutic technic connected with the treatment of disease. The practice in our best hospitals is based on this recognition of the advantages of group medicine. The services of various specialists are constantly asked for and freely given in a hospital medical team. The same begins to be applied in out-patient work. It is the modern trend; and legislation of no kind should interfere with it lest medical progress and medical teaching be jeopardized.

Under a health insurance law the tendency will inevitably develop for patients to resort to individual physicians rather than to medical institutions. This will be prejudicial to group medicine. In order to forestall this tendency as far as feasible the last bill introduced in the New York legislature contained a provision for the payment of physicians for services rendered to insured persons in hospitals or dispensaries. However, in spite of such a provision, and notwithstanding the educational work that may be attempted, at first there will be a shifting from the hospitals, and particularly from the dispensaries, to the private offices of physicians. This tendency will probably be stronger among the general medical patients than among those seeking the advice of surgeons or other specialists. The tendency may be somewhat offset by the increased use, as a result of health insurance, of institutional treatment by those who today cannot afford specialists' fees but who will not accept medical charity. It is probable, however, if proper guidance is provided, that the public will come to realize the advantages of group medicine, and our splendid medical institutions and schools will not suffer because of health insurance.

LOW AUTUMNAL MORTALITY

The general average of public health is better than it has been for a long time according to the reports of the Metropolitan Life Insurance Co., Industrial Department. If serious influenza sequelae are to affect health averages, they are yet to be noted.

In their published comparison of death rates per 100,000 from July to November the causes of death named in order of importance are: (1) tuberculosis, all forms; (2) organic disease of heart; (3) accidents and unspecified violence; (4) Bright's disease; and (5) pneumonia, all forms.

CAN'T CUT MEDICAL COURSES

Medical students who interrupted their studies to answer their country's call to arms cannot count war service as part of their qualifications for diplomas, according to a decision rendered by Supreme Court Justice Delehanty. The decision was given in the case of an application by students of the New York Homeopathic Hospital and the Flower Hospital for mandamus directing that they be admitted to practice at once. They alleged that a former dean of the school had promised them their diplomas at the end of the year of 1918-1919 in return for war service, although the full course required another year of experience as hospital interns.

BEDSIDE TRAINING FOR PHYSICIANS

A means of providing whole-time physicians for hospitals which at the same time would afford clinical educational facilities for physicians is embodied in a recommendation by Mr. E. W. Morris, House Governor of the London Hospital, which is reported in the *Prince Alfred Hospital Gazette*. Whole-time hospital service is the only way the doctor can learn his profession. A staff of medical men should be provided who would give all their time at fixed salaries for five years, during which period their hospital time and salary would gradually be reduced so as to enable them to slide into general practice without loss, the hospital connection making it possible for them to become consultants. Such men should have under them not more than twenty or thirty beds, so that they might have a chance to study their patients, and should also have paid assistants in carrying out research. The patients would have the advantage of better attention and improved service; the men would reap the great educational advantage of being on a hospital staff.

THE STATUS OF INFLUENZA

By D. M. Lewis, M.D., New Haven, Conn.

BY REASON of three factors operative in the past two years, it is possible to show at this time what the status of influenza is, and, consequently, show the measures that may control epidemics. The factors are (1) that an unusual number of young adults drawn from wide areas of this country not only have been placed by thousands into camps but have also been transferred in numbers from either one camp to another or to another country; (2) that among such pharyngitis, tonsillitis and bronchitis were included as communicable diseases; and (3) that as never previously possible, there are country-wide records of bacteriology, not only of the diseases just mentioned but of large numbers of so-called healthy contacts. This material, when studied epidemiologically in connection with the vital statistics of the country at large or by states, is so voluminous in detail that a summary only is given.

Some Suggestive Parallels

Three periods are of importance; the first is that of the first six months of the life of the camps, October, 1917, through March, 1918,—a period of measles and pneumonia. The second is the six months ending December, 1918, a period of influenza and pneumonia. The last is the post-influenza period, the first six months of 1919. A study of the 1917 report of the Surgeon General shows definitely the well known fact that the rural population has a high frequency or epidemic measles only after urban contact. Irrespective of whether the camps were National Guard or National Army,—so divided at first on the supposition that the National Guard had received previous training in sanitation, the distinction became lost with the November, 1918, drafts—the highly urban units had but few measles as contrasted with those from rural districts.

A point not appreciated unless the record of these camps is charted is that there is a similar proportionate primary and secondary pneumonia, and the time frequency or epidemicity of the pneumonias is similar to that of measles; further, the bacteriology of the secondary lobar pneumonia follows the type of that which is primary; *i. e.*, in one place type I or II in another type III or IV, whereas the primary and secondary bronchopneumonia was either the streptococcus or type IV pneumococcus. Thus during the first three months of measles and pneumonias the sum total of pneumonia deaths for three of the rural National Guard camps was more than 500, as contrasted with a total of 4 for the three National Guard camps predominantly urban. The same is true of a contrast of National Army camps. To be emphasized is the general accord of lobar pneumonia having a fatality of from 10 to 15 per cent where that for bronchopneumonia, whether primary or secondary, is from 40 to 60 per cent. There is evident, then, an unappreciated civic finding that primary bronchopneumonia is a problem of greater import among young adults than lobar pneumonia, whether or not in association with measles.

If now the statistics of pharyngitis, tonsillitis, and bronchitis are taken, there is found a proportionate frequency in advance of the measles and the pneumonia; and further, the bacteriology of both sets are alike. There are also statistics that the so-called healthy carriers, when examined at or after the height of the frequency of the measles pneumonias, are in accord with the varying bacteriology of the different camps. Alone of all the camps, the statistics of Funston have a difference which proves certain points. One of the most prevailingly rural camps, "there was a something about conditions or perhaps the type of measles prevailing which prevented the usual heavy onset of pneumonia following measles." Statistics show that alone of all the camps, all measles cases were given on the first, fourth, and eighth day streptococcus vaccines; that alone of all rural camps that there was no proportionate amount of primary bronchopneumonia, and, further, that during the measles frequence a dichloramin-T spray was used generally throughout the camp.

What Happens After Transfers

If we examine what happens after transfers from camp to camp, it is found, for example, that Custer, which was a two-thirds urban camp, had no deaths from either primary or secondary bronchopneumonia during the first three months, for the reason that they had but two such cases in all, following a moderate amount of measles. During January, 1918, there were transferred to that camp from Jefferson Barracks some 1,500 soldiers, one-fifth of whom were ill with respiratory diseases, including measles and pneumonia. Two days after arrival 600 more reported at sick call. Two weeks later from the same place there

arrived 99 men, of whom 25 had tonsilitis, 10 suffering from bronchitis, and 3 from measles. After this time both primary and secondary bronchopneumonia became frequent. In March more than 1,000 men came in from Dodge with a respiratory sick rate of 62, as compared to the then existing camp rate of 15. From these two sets of transfers there arose a streptococcus frequence. In May, for the first time, there was found present type I pneumococcus among negroes with pneumonia; these were among a draft of Alabama negroes arriving the end of April. The same was true of other urban camps, like Upton, Grant, Devens, and the predominant organism introduced leading to the primary or secondary pneumonias may again be found in the third period. At the end, then, of the first six months the mortality rates for disease only, represent mainly that of measles pneumonia. It is also noteworthy that an exactly analogous situation arises with reference to German measles and pneumonias.

Secondary in importance is the frequence of meningococcus meningitis. During and following measles frequency or epidemicity there is proportionate incidence of meningitis, even when is excluded the fact that a large part of the high frequency of Pike and Dodge was laid to transfers from Funston. Other than a remarkable fact that in one of these camps 80 per cent of the measles patients in one ward were meningococcus carriers, statistics show that the chronic carrier is a contact of the case, that both are of the same type as contrasted with frequent fresh carriers, and, what is to be emphasized, the carrier and not the case is contagious. As contrasted with so-called healthy carriers of the streptococci or the pneumococci by the bacterial presence of the organism in nasopharyngeal cultures, the percentage of carriers of meningococci is much smaller; yet the percentages found in camps bear a rather definite proportion to the case frequence and the proportion is greater when the so-called chronic per cent is considered. The latter are those in whom the meningococci are present in great numbers, even to pure cultures. This point should be remembered for its future reference.

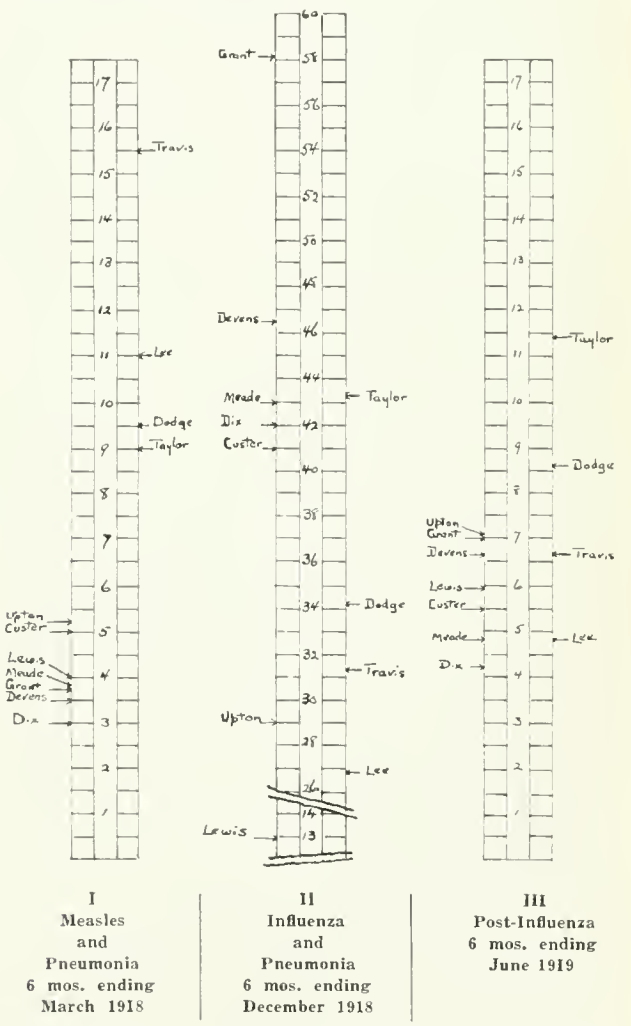
Of moment is also the fact that in those camps only where there was high frequence of streptococcal types manifested by otitis media and septic throats was there an ensuing frequency of cases of scarlet fever. In one camp where such conditions were excessive there was a following epidemic of scarlet fever.

During February and March, the last two months of the first period, there were, as we have seen in the case of Custer, infections transferred from one camp to another in bulk, so to speak; Dodge with its streptococcus "flu" introducing it into Custer; Grant with a secondary grade of measles more severe than the previous genuine type, with prevailing streptococcus bronchitis and tonsillitis gained from Funston. Noteworthy at this time were the conditions at Fort Sam Houston, where in post-mortems streptococci predominated, there were a few cases where the B. influenzæ was present in the blood and the tissues; it was present in 5 of 13 sputa examined, and in these 5 at post-mortem the organism was present in the lungs. It is also recorded that, contrary to civic life, a streptococcus actively hemolytic was present in the camp if the individual examined was subject to epidemic coryza, tonsillitis, laryngitis, or bronchitis.

Near the close of this period and continuing from March 1 to May 26, 1918, there was an epi-

Mortality Rates: (Annual) Disease Only in Certain Camps for Certain Periods

Camps on Left = + 50% *urban.*
Camps on Right = — 50% *urban.*



A study of disease incidence in certain camps over six-month periods and a comparison of the successive types of infection, correlated with additions and transfers from camp to camp, form a new basis for conclusions to be drawn from the recent epidemic of influenza.

demic which, as reported by Opie *et al.*,[1] consisted of five waves of influenza. The essential points are that in the first two weeks it swept the entire camp; that the four succeeding waves were limited to transfers from other camps in the interim; that successive outbreaks of pneumonia followed this influenza and each was limited to the organizations as they were attacked by the influenza; that while measles pneumonias previously in this camp had been 79 per cent bronchial, in this epidemic between 93 and 98 per cent were lobar and preëminently pneumococcal types I and II. Examination of the healthy men showed 61 per cent carriers of types III and IV and 35 per cent carrying B. influenzæ. Further, the pneumonia was characterized by the low mortality of lobar as contrasted with the preceding streptococcal bronchopneumonia of measles.

Unfortunately, no data are given as to any transfer of troops to this camp previous to February 28, when there is charted an initial frequency of influenza. It is stated and charted that influenza had been present from the beginning of the camp; if a closed camp, that is, not having had transfers since its drafts in November brought it to its full strength, if before, during, and after measles and measles-pneumonia there was no frequence of primary bronchopneumonia, this fact, with the frequence charted of influenza of bronchitis and primary pneumonia smoldering during five months would have great bearing on the subsequent developments in this paper. In that Fort Sam Houston was the only camp whose record showed the B. influenzæ present before this epidemic at Funston, it is possible that transfers were made from that camp to Funston; or that the latter supplied material toward the end of January or early February to Fort Sam Houston. The important fact is that at Funston all the essentials of influenza, with the same high proportion of healthy carriers found after the epidemic, are present in no wise different from the "flu" of Dodge, save that the latter was streptococcal and, unlike the latter, was of low mortality.

Tracing the respiratory rates and illnesses in the American Expeditionary Forces, we find a respiratory rate maximum in January, 1918, 86 per 1,000 strength, decreasing progressively to 6 in May and increasing in June to 17. The statistics now show that, where studied, there was from April through July an epidemic of influenza due predominantly to the B. influenzæ. Not only was this present at the base ports but in the naval forces as well as among the Hindus. Following this mild epidemic there was an outbreak of meningococcus meningitis. The same was true among the British forces.

If now the statistics of civil life are examined for deaths from respiratory diseases, namely influenza and pneumonia, in the absence of case reports and bacteriology for the winter season of 1918, there is a notably decreased number of deaths as compared to the previous similar months of 1917 up to the middle of March. As I have previously shown,[2] there was an excessive death rate for the cities of this state and for New York City for the months of March and April over the previous months of the year and over the previous year. It now appears from the *Public Health Reports* that the same holds true generally for all states in the country. Further, the *Reports* show that for ninety-five great towns in England there is a first high peak death rate in latter June and July, while in India there is one for Bombay, Calcutta, and Madras from July 6 to 20. There are now also in the literature statements that during March and April such conditions were present in Baltimore and Detroit, for example.

Returning to the army camps and the second period, that of the "flu" and pneumonia, we are told that the epidemic appeared as out of a clear sky. At Devens, for example, on September 12 it was officially recognized; at Upton it is said to have begun abruptly on September 13, with thirty-eight cases from Devens bound overseas. After this it is stated to have spread South and West. The examination of the sick rate among the organizations at Devens prior to September 12, and the difference between the bacteriology of Devens and Upton as being typical of that obtainable for all camps thus far recorded, may be dwelt on at this time. On the first of September the two companies of the division subject to the earliest and hardest attack showed an excessive sick rate; on September 7 there was an admission from one of these companies for meningitis and the day following a dozen more from the same company; on the fourth, hospital admissions were twice those on the first; on the eleventh twice those of the fourth, and not until complicating pneumonias were increased was the situation diagnosed.

When, then, the epidemic gained headway there had been present an extensive mild epidemic disease which was regarded as no different from that existing during the spring. Blood cultures gave positive results in approximately one-fourth of more than one hundred cases; two-thirds were type I and II pneumococci, one-third type IV.

[1] Opie, Eugene, et al.: Pneumonia at Camp Funston, Jour. Am. Med. Assn., 1919, lxxii, 108.

[2] Lewis, D. M.: Epidemiology of Influenza, Bost. Med & Surg. Jour., November, 1919.

One case, only, gave the streptococcus hemolyticus. This confirms their statement that two-thirds of the cases were lobar and one-third bronchopneumonia. In 62 per cent of pneumonia sputa, pleural fluids, and fluids from the nasopharynx, the lungs at post-mortem, occasionally from the heart blood and accessory sinuses, and frequently in pure cultures, there was found the B. influenzæ. At Upton the streptococcus hemolyticus was said to predominate and, clinically, in the majority of instances there was a tonsillitis which, with its thin, delicate membrane, was differentiated from diphtheria and Vincent's only by bacterial exclusion. A record of sputa findings shows 60 per cent pneumococcus type IV, 20 per cent streptococci and 5 per cent pneumococci types I and II. While at the beginning there was but 2 per cent B. influenzæ, later improved technic enabled its recovery in 38 per cent of cases, notably in conjunction with type IV. The existing flora of the predominant pneumonia at Devens was type I and II pneumococcus; this was the content of the Depot Brigade, and notably a previous draft of Alabama negroes among whom there was during August a high rate of illness, especially pneumonia, "permissible as being in negroes." The streptococcal content at Upton had been present during the spring.

Explains the Clinical Transition

If now we go to the central mid-western camps, Sherman, Grant, and Custer all show by post-mortems varyingly slight excesses of pneumococci IV or streptococci, the latter mostly hemolytic for Grant and Custer; non-hemolytic for Grant, while at Grant reports indicate that of the excess of pneumococcus, type II predominates over type IV. Nasopharyngeal surveys at or just before, as at Custer, confirm the findings. Exceptionally were influenza bacilli found. There is, as at Devens, the same evidence of a continually increasing respiratory rate with pneumonias during all September. With a certain something happening, an epidemic is officially on, as is well illustrated at Sherman. After an atypical picture of catarrhal infection of the respiratory tract with fever, cough, and conjunctivitis, and little or no leukocytosis, gradually in five days the type changed; the transition was rapid;— a condition suggestive of chlorin gas poisoning present, manifested as an acute inflammatory pulmonary edema which diminished as the bronchopneumonia increased.

In this connection, the throat and nasopharyngeal cultures showing 54 per cent pneumococci and but 4 per cent hemolytic streptococci, the sputa of pneumonias showing 80 per cent type IV pneumococci, and all the positive blood examinations showing type IV contrasted at postmortem with 53 per cent pneumococci and 47 per cent hemolytic streptococci may well explain the clinical transition. Its importance, I believe, is great, in that such a clinical transition led to the decision that influenza was epidemic at Custer. With the fact that these camps had during March their streptococcal content transferred to them from Dodge and Jefferson Barracks, with the fact that this epidemic hit disproportionately the new divisions which had been in camp but a month or more, as contrasted with the Depot Brigade, which was left over from the spring, the residual endemic content of the predominant organism in less than one-third of a camp's strength finds highly inflammable material in a newly drafted division of upwards of three times the strength.

Although it would seem possible from the statistics of the American Expeditionary Forces that from their earlier epidemic proportions in August they transferred influenza to this country, the difference in bacteriology of the Chelsea Naval Station, with its high streptococcal hemolytic content as compared to Devens, makes such a transfer improbable, the more so as the situation at Puget Sound and the Philadelphia station were both like that of Chelsea. It is further strengthened by the fact that where the Chelsea Station had during September and October hemolytic streptococci in 13 per cent of cases, during December and January, 1919, with the exception of one type IV and one non-hemolytic streptococcus in December, all pneumonias were streptococcus hemolyticus. That the epidemic in the American Expeditionary Forces was less severe, although going on at the same time as in this country, should be logical, in that the expeditionary forces had gone through streptococcal and type IV pneumococcal experiences before leaving this country, certainly in many of the camps. The increase strength from less than 300,000 at the end of March to one and one-quarter million in August should be remembered. That this country was also transferring during August and September influenza abroad is a matter of statistics, although the absence of bacteriology makes proof unavailable at present.

Equally large statistics in different municipalities as to the specific variations in bacteriological content by regions and with reference to the spring are not available. Only where the incidence in a new division entering a camp during the summer is not the prevailing high rate, but is low similar to that of the residual endemic camp infection, could be argued the penumonic infection of the community or region from which

that division came. Most suggestive, as shown by the mortality rates illustrated, is a notable reverse ratio of the camps: those high in the first period are low in the second. With full statistics of all the camps, the lower death rate curve for certain western and southwestern cities and states may be so explained, as also their higher rate for deaths during the spring.

There are few available detailed statistics of the camps for the post-influenzal period. Much may be gained from the weekly report of diseases. Analogous to the Chelsea Naval Station with its second wave, one of pure streptococcus infection, the higher influenza and pneumonia, including deaths of Devens, Upton and Lewis, for example, over Custer, can be reasonably assumed by the higher streptococcal content in the first three over Custer. In fact, it is striking how the average mortality for the three periods balances; two years obliterated the difference in mortality between predominant urbanity and rurality, a difference originally marked, but changed despite the fact that drafts for the new divisions came from the same communities for the same camps during the later periods as well.

The Facts as Demonstrated

Until the detailed statistics of camps, in terms of divisions, their transfers and periods of residence, residuals, (depot brigades, for example), and large bodies of casuals, can be exactly traced by specific infections and specific bacteriology the following demonstrated facts are worthy of attention:

(1) All respiratory diseases are bred during or after an appreciable amount of inflammatory disturbances of the upper respiratory tract.

(2) Isolation of all such cases of inflammation do not control those of the ensuing respiratory diseases.

(3) A high content of healthy carriers of a specific organism may be found during or after such a frequency of inflammations due to that organism, and may at the time be shown to be specific, as are the inflammations for one locality; they may be divided into two classes, the one where even pure cultures may be obtained from the mucous surfaces, the second in infrequent numbers or only in pure cultures in the underlying tissues. The first class are among the close contacts of the case; they are, as in meningitis and diphtheria, called chronics, and are in sufficient numbers to explain the existing cases.

(4) There is a large group of these organisms which produce bronchopneumonia: the bacillus influenzæ, the streptococcus viridans and hemolytics and the set composed of type IV pneumococcus, streptococcus mucosus and diplostreptococci; in the absence of cultures until late in the disease, the meningococcus has not infrequently been a missed type. Their absence has determined the absence of such complication in the exanthemata; their presence in the absence of the exanthemata may produce a very similar picture clinically; during certain seasons and of certain frequence, such cases are called grippe; when epidemic, they have been called influenza. These organisms have been endemic for so long that epidemics with pure cultures of one organism only should not be expected. Pandemic, earlier waves of low mortality manifest as epidemics of endemic community bacterial content determine following waves of consequent increased virulence. Variations in succeeding waves have been possible from the introduction of a different organism present elsewhere in a former wave.

(5) There is direct evidence that during latter 1917 the influenza bacillus was present in small frequency in the American Expeditionary Forces at Fort Sam Houston and Funston. That transfers from Funston abroad after the epidemic at Funston caused the epidemic in the American Expeditionary Forces rather than previous small frequency, or than the present assumed focus endemic in France in the spring of 1918, lack as yet the time of transfers from Funston but agree with the different bacteriology of the spring influenza of France. Also, later proof may show that Funston seeded other camps in this country. Contra, as in Custer, where there were no transfers from Funston after the spring epidemic, there was no content of influenza bacilli in either cases or carriers.

(6) Public health officials, state and otherwise, do not make practical use of vital statistics: a country-wide, definitely marked, increased mortality for pneumonia and influenza during March and April should have called out the unusual activities employed too late in the second wave. Of moment, in its relation to influenza, the proportionate increased deaths during those two months for all forms of tuberculosis, also country-wide, was not made use of.

(7) There should be noted at this time that the reported frequency of the presence of the influenza bacillus in cases of measles, diphtheria, scarlet fever, whooping-cough and tuberculosis, for example, which is being used as an argument against the specificity of the organism as a cause of influenza, may, in the instances where the time period is given, be shown existent in that community subsequent to an influenza or grippe epidemic. Such facts are presumptive evidence to the epidemiologist why the individuals were susceptible

to those diseases as well as why the diseases named have their waves of frequence.[3]

The measures for control of influenza then mean, (1), either the coining of new specific terminology for the very similar respiratory diseases caused by other pathogenic organisms than B. influenzæ; or, better, the diagnosis of the different component parts of the respiratory tract in terms of their bacterial content: thus, pharyngitis-influenzal, pneumococcic, streptococcic, meningococcic, etc., having regard for the fact that as a recent case of a different disease, individuals may have in the upper respiratory tract more than one apparent pathogenic organism, and that as a recent contact of an active carrier of a yet different pathogen, he may further have acquired that organism, also. (2) As may always be shown, no frequency of respiratory disease can arise without vital statistics giving at least a warning in the absence of possible bacteriology in ample time to control the situation. (3) Of the greatest importance is the isolation of carriers active in the sense that they are throwing off from inflamed mucous surfaces specific organisms in amounts sufficient to explain contact infection. Other than definite results obtained in a few camps by antiseptic sprays used on all healthy contacts, absence of control of the respiratory diseases, (which control was expected by hospitalization of all cases of the earliest manifestations), would seem to lie definitely in the absence of control of carriers.

[3] Lewis, D. M.: Use and Value of Statistics, Bost. Med & Surg. Jour., April 11, 1918.

SO-CALLED SHELL SHOCK IN THE GREAT WAR

By TOM A. WILLIAMS, M.D., Corresponding Member of Neurological Society of Paris, Etc., Washington, D. C.*

DURING the war the British Minister of Labor was reported by the newspapers to have stated that under no conditions should a sufferer from shell-shock ever be sent back to the trenches. Even if Mr. Hodge was speaking only of cerebral concussion, his statement is untenable, for in the French army innumerable soldiers have returned to the trenches and have done good service in spite of concussions so severe as to keep them in hospital for months.

But if the minister included under "shell-shock" those disturbances of the emotions which occur in some individuals who have been subjected to bombardment, then one can scarcely imagine a statement more deleterious to the morale of the army, for the statement implies that the disturbance of the system caused by explosions is incurable and hence as much to be dreaded as an incapacitating mutilation. Such a belief in the minds of the soldiery would furnish an intensely powerful suggestion towards anticipatory dread of the effect of an explosion. The contagion of this mental state continues to increase until cowardice replaces bravery in the character of the soldier, a condition which would have seriously endangered the winning of the war. This was a most pernicious pronouncement. It is fortunate that no American statesman allowed himself thus to step into a province purely medical. As a matter of fact, the term "shell-shock" was removed from the British official nomenclature, and the cases formerly thus comprised were sent back to advance hospitals under the rubric NNYD. They were there dealt with in accordance with the diagnosis reached. In the British service, very few NNYD's had received concussion. The concussions were nearly all diagnosed at the extreme front and were sent to the base when they were moved at all.

In both the French and British services, the procedure changed frequently during the war. The latest most usual practice in the French service was to send all nervous cases not dealt with by the regimental doctors or not requiring early surgical operation immediately to the neuropsychiatric center of the army zone. Among these cases were those known as *commotionés*, a classification which included many cases presenting sequelae of concussion, such as partial and fugitive modifications of reflexes and motility, restlessness or agitation with or without delirium, and modifications of the cerebrospinal fluid, which may show blood and generally presents hyperalbuminosis, sometimes a leukocytosis, and nearly always increased pressure as measured by the manometer. Of course, agitated delirium alone would very far from justify a diagnosis of concussion, but it is a frequent sequel of the primary comatose state.

Formerly included in the general term *commotioné*, later on many were differentiated as *emotionés anxieuses, confusionals* or *pithiatic* cases, in accordance with the very essential differences indicated by those terms.

It is gratifying that in the American service, this practice was followed from the first; for

*Being a report to the Surgeon General made in 1917 while the writer was adviser in neurology to the American Red Cross in France.

classification is not a mere academic subtlety, but corresponds to quite fundamental physiopathologic differences.

For instance, entirely apart from the effects of concussion, which are readily differentiable, a *confusional* case is a toxic one.[1] The patient is in need of treatment directed to his metabolism; and psychotherapy is not indicated.

An *emotive* case[2] is one in which instinctive tendencies, generally animated by fear dominate the patient's behavior; on the one hand, some occur because of the lowering of emotional thresholds from physiopathologic causes, which require further study, including that of endocrine apparatus; on the other hand, there occur those caused by besetment by dread emanating from an unpragmatic psycho-social attitude regarding the dangers to be faced in war.

The *anxious* case perhaps pathogenetically belongs to the same category as the emotive, and further study is required to see whether there is practical utility in separating this syndrome as certain French writers have done as regards the practice of military psychiatry. I believe that no essential difference exists between the two.

The *pithiatic*,[3] that is, moved by persuasion, is so called by Babinski as a substitute for the term hysteria, (caused by and removable through suggestion). Whether there has been injury or not, the *pithiatic* case is disabled only because he cannot bring himself to believe in the capacity that his physical status permits him. Whether he is misguided about himself and wants to return to duty, or whether he is only too glad to believe himself incapacitated in order to escape duty makes little difference as regards the treatment he should have. Nothing is more natural when an unwise solicitude is employed than the exaggeration of the temporary shock and confusion engendered by a violent explosion to a degree where the patient believes himself to be seriously damaged. He will continue in this feeling, however, only if it receives encouragement, whether this emanates from the behavior of those around him, or whether it has been inculcated before the accident by such unwise utterances as that of the British Minister of Labor.

If, on the other hand, the soldier believes that in the vast majority of instances a concussion by a shell is not necessarily of greater significance than the seeing of stars after a knock-down blow in boxing or a fall on the ice, he very quickly allows himself to be persuaded by his regimental doctor that there is nothing serious the matter, and returns to duty at the proper time without further preoccupation. If, however, he is allowed to rest for some days in the belief that he may be seriously damaged, and especially if he is passed from pillar to post and undergoes frequent medical examinations before he is dealt with as a *pithiatic*, he will have already persuaded himself that he must be a very sick man and that the doctor who begins to treat him by persuasion does not understand his case and is unnecessarily harsh. The patient, feeling thus, resists treatment. When the doctor allows himself to be baffled the first time, the patient becomes more and more obstinate in his determination to stay sick. He becomes what is known as a *perseverator*, and can then be restored to efficiency only by intensive and highly skilled treatment.[4]

Proper Prophylaxis Against Fear

From several quarters the recommendation was made that these reactions could be best prevented by deliberate prophylactic instruction of the soldiery concerning the nature of so-called shell-shock in its different forms. *A priori*, to those not versed in psychopathology it might appear very specious to argue for the prevention of the unfortunate psychopathological consequences of explosions which have occurred in so many cases during the war. What more natural than to suppose that to be forewarned would be to be forearmed?

Proper consideration regarding the facts concerning hysteria shows the hollowness of these pretentions; for it is a well known fact, even to the teacher in an elementary school, that to place before a person any idea or argument is also to implant in his mind the possibility of its contradiction. For instance, to say to a child, "Do not be afraid," is immediately to induce in him the idea that there is occasion for fear, something that he may not have in the least suspected before the warning was given. In this inductility the vast majority of adults are no better than children. Indeed, it is a human character. Hence, to give prospective soldiers systematic instruction regarding possible loss of nerve after explosions would simply be to exaggerate the import of a shellburst which does not wound. It would encourage preoccupation by the possibility of the occurrence of shell-shock whenever they went into action; the self-confidence of the individual would be destroyed, and the morale of the troop would deteriorate. Indecision and fear would take the place of dash and courage.

1. Williams, Tom A.: Management of Confusional Cases, Internat. Clin. 1916, Series 26, II; also, Trans. Am. Medico-Psychol. Assn.
2. Williams, Tom A.: Emotions in Warfare, New York Med. Jour., Sept. 12, 1919.
3. Williams, Tom A.: Management of Military Hysteria, Military Surgeon, November, 1919.

4 This subject will be fully treated in the author's forthcoming book on "Disorders of the Nervous System in Warfare."

On the contrary, the best preventive of demoralization by explosives would be to ignore the whole subject, never to let them hear of shocking by shells, if that were possible; or, at all events, to pay the minimum of attention to it, never to discuss it nor read about it, for in no subject to a greater degree than in psychology is the "little knowledge" so dangerous a thing. Misapprehensions, misinterpretations are inevitable. Every neurologist of experience knows how easily even patients of the ostensibly intelligent class, and perhaps intelligent in other matters, make mistakes about the psycho-pathology of their disorder, even when dealt with individually and intensively. Individual and intensive dealing with the soldiery is impossible. They have to be dealt with in groups, even in the case of the officers. There are not enough neurologists with clear conceptions of modern psychological data to instruct individually even the colonels and majors of the army. It follows that prophylaxis by instruction would be a futile measure even if the command were imprudent enough to undertake it.

Complete Dominance During Action

Psychology teaches us that a person dominated by one emotion cannot have a conflicting feeling at the same time. The lovesick swain has little appetite for food. The football player works up to an intense lust of victory, and feels no fear for his body. Indeed, he often fails to feel severe pain inflicted during the game. The best spirit to encourage in the soldiers is not the negative one that they cannot be attacked by shell-shock, but the positive one of desire to gain their objective, even if this desire has to be fomented by hatred of the enemy. The complete dominance during action by a desire to win at all costs, similar to that shown in the football player, is the spirit to aim at during attacks. In proportion as this rules among the men, there will be less room for pusillanimity or apprehension of shell-shock. The man knocked down by a shell will tend to immediately get up and join the rush just as a football player who falls.

But one will object that cases will occur, as they have occurred in the other armies, in spite of anything. Of course this is so; but, in the first place, it is quite certain that their abundance is inversely proportional to the healthy skepticism regarding their inevitableness; and, in the second place, that they are more abundant in proportion as the medical officers show vacillation and lack promptitude in the manner of dealing with them.

What was known before the war to some, since the war stares everyone in the face, namely, that the resistance of a hysterical patient is very slight if he is dealt with during the formative period of his disorder, and that the recalcitrance of the symptoms increases progressively with their duration. Hence, the medical officer of the first casualty station, who has the power to demonstrate rapidly and powerfully to the hysterical soldier that he is entirely mistaken in his view that his condition is serious, and deals with him on the spot firmly though encouragingly, finds that he has to send very few cases behind the lines in consequence of pithiatic disturbances due to explosions. The moral effect of the patient's recital to his fellows after the attack of how quickly his doctor restored him and sent him back to the line is invaluable. In the other case, the moral effect of explosions is disastrous to the morale of the whole company in the next attack and even before it.

Of course, it is necessary that the regimental doctor shall be able to distinguish these cases and be reasonably free from mistakes. It does not require great neurological erudition to do so. The absence of unconsciousness, the presence of the normal reflexes, and the absence of visible wound should make him immediately skeptical as to the validity of any neurological symptoms complained of. Doctors inexperienced in neurology will, of course, make mistakes and send some men back to the lines who in reality are not fit to go on account of the severe disturbance of the emotions which really should necessitate evacuation. But a few mistakes of this kind are a lesser evil than the destruction of the morale of a whole army, especially as these mistakes are readily rectified by less rapid examination after the stress of the attack is over, when it is a very simple matter to send the patients to the nearest neurological center for diagnosis.[2]

Present Strength of Medical Corps

The office of the Surgeon General states that the commissioned strength of the Medical, Dental, Sanitary, and Veterinary Corps on active duty is 3,206, in addition to which there are 7,768 officers in the Reserve Corps, making a total of 10,974.

THE MEDICAL PROFESSION IN KENTUCKY

The health code of Kentucky is a victory for the medical profession of the state in its fight for advancement in the protection of public health, and organization of County Health Departments as provided in the new law will now proceed under the direction of the whole medical profession. Fulton County is first in providing a whole-time health officer at the maximum salary provided by law, and some twenty other counties have the step under consideration. Close cooperation with the State Board of Health is assured, and the collective responsibility of the medical profession should assure the efficiency of the health work.

SIMPLE GOITER—A PUBLIC HEALTH PROBLEM

By CAREY P. McCORD, M.D., and ROBERT C. WALKER, M.D., Department of Industrial Medicine and Public Health, University of Cincinnati

Simple goiter becomes a proper matter for public health considerations because of its enormous incidence and because of the practicability of its control by general measures.

Readily applied remedies of proved efficacy and of sufficiently low cost have been devised for its control. These measures, while not fully standardized, have been demonstrated to be harmless and simple of administration.

The school age coincides with the age of the highest incidence of goiter, and the public and high school systems afford a splendid mechanism for carrying out the work.

"SIMPLE GOITER is probably the easiest of all known diseases to prevent." The prophylactic measures instituted by Marine and Kimball have yielded such results as to lead to the statement quoted. In widespread areas of the country the incidence of simple goiter is such as to involve 56 per cent of all women within certain age limits. Among men the incidence, although much less, is of such frequency as to be of definite significance. This occurrence of goiter is unnecessary in that it is probably wholly preventable through procedures carried out at trivial cost, and attended by no risks or inconveniences.

Any condition definitely disfiguring, and in many instances attended by disturbing manifestations, which involves hundreds of thousands of young women, demands systematic public health consideration. Particularly is this condition a practical public health problem through the necessity of applying generally, in goiter areas, the simple prophylactic measures so successfully carried out by Marine and Kimball in Akron and in other cities in Ohio.

Endemic or Simple Goiter

Simple goiter is the commonly encountered "big neck," known to all the public in goiter districts. This form of thyroid enlargement embraces the types formerly designated as endemic, epidemic, and sporadic goiter. It also includes the forms designated in terms of periodicity as fetal goiter, goiter of adolescence, goiter of pregnancy, and, in anatomical terms, such forms as non-toxic, parenchymatous goiter, colloidal goiter, cystic goiter, etc. In general, it is sufficient to note that simple goiter includes all cases of thyroid enlargement except toxic goiter, exophthalmic goiter, thyroiditis, and true thyroid neoplasms.

Simple goiter is a deficiency disease characterized by a non-inflammatory enlargement of the thyroid gland, unassociated in the greater number of occurrences by any marked functional disturbances. To the patient a simple goiter is a matter of concern usually for one or more of the following reasons: (1) The goiter is disfiguring; (2) the goiter, from its size or peculiar location, brings about symptoms from mechanical pressure on neighboring tissues; (3) constitutional disturbances actually attributable to the trivial thyroid deficiency, such as apathy, chilliness, constipation, asthenia are produced, or symptoms attributable to the mental state incident to apprehension over the enlarged neck.

The Prevalence of Goiter

The extent to which goiter prevails throughout the world is seldom appreciated. Few countries appear to be entirely free from it. In various portions of the globe there exist well defined extensive goiterous areas in which the large majority of the people are affected. Notable among these districts are portions of India, Switzerland, and Brazil. However, in countries that are not definitely looked upon as goiterous districts the incidence of simple goiter is remarkable. In France it was computed in 1874 that no less than one-half million persons presented simple goiters. In England and Scotland simple goiter is equally prevalent, especially in small areas such as Derbyshire and Nithsdale. The terms "Derbyshire neck" and "Nithsdale neck" are in common use among the public, and are indicative of their recognition of the prevalence of goiter in these two localities.

In the United States the entire Great Lakes Basin is regarded as a definite goiterous area. However, as the results of careful study and extensive

1. Adami, J. G.: On the Etiology and Symptomatology of Goiter. Practitioner, Lond., 1900, lxiv, 56.
2. Ashmead, A. S.: Note on the Etiology and Natural Cure of Goiter, New York Med. Jour., 1895, Pt. I, 1344.
3. Brendel, E. P., and Helm, H. M.: Goiter Among Draft Men from the Northwest, Arch. Int. Med., 1919, xxiii, 61.
4. Clark, T., and Pierce, C. C.: Endemic Goiter: Its Possible Relationship to Water Supply, Public Health Reports, 1914, xxix, 939.

surveys accrue, it is at once in evidence that simple goiter is widely distributed over many other portions of the country. It is difficult to estimate the number of persons afflicted and definitely to delineate the sections of the United States wherein goiter prevails. Numerous isolated investigations have been made, and from these it is possible to evaluate the significance and the prevalence of simple goiter in approximate terms for the country as a whole. The entire Great Lakes Basin may be regarded as one large goiter district within which are numerous other centers, wherein the prevalence of goiter is even greater than for the area as a whole. Holder has described centers in Montana, Dakota, Mississippi, and, also, in the vicinity of the Rocky Mountains. Marine finds the disease widely disseminated along the Great Lakes, both among humans and animals, especially among sheep and dog. According to him, 90 per cent of the street dogs of Cleveland are goiterous. Other centers have been described by Munson among the Indians; by Dock in Michigan; by Ashmead in Pennsylvania; in Montreal, Buffalo, Detroit, Cleveland, Islands of Lake Erie, Oregon, and in Seattle. According to Bircher, goiter is common in the states of New York, Ohio, Virginia, Michigan, Kentucky, Tennessee, Maine, Vermont, Connecticut, Massachusetts, and New Hampshire. In general, the Atlantic states, with the exception of the western portions of New York and Pennsylvania, and the Gulf States, not including Texas, present a lower incidence of simple goiter than the Middle West and the western states. In the latter, wherever careful and extensive surveys are made, it is regularly established that simple goiter exists with such frequency, notably among young women, as to warrant public health concern.

The Frequency of Goiter

A study of the public school population affords the most accurate data of the frequency of goiter, inasmuch as the public school inclusive ages cover the period of its greatest incidence. The third decade, twenty to thirty, is the next period of greatest frequency. Marine and Kimball, in the City of Akron, Ohio, in April, 1917, examined 3,872 school girls between the fifth and twelfth grades inclusive. Of this number 2,184, or 57 per cent, were found to present simple goiter; 1,688, or 43 per cent, were found to be normal. All of the young young women examined were in the second decade of life. The frequency increased with the years of age, being 41 per cent, for the years of 10 to 12, inclusive, and 60 per cent for the years of 18 to 20. It is noteworthy that goiter is so infrequent among young males that it was not made a matter of study by Marine and Kimball in their Akron survey. In the second decade, goiter occurs about six times more frequently among girls than among boys. This sex predisposition is not fully accounted for, but probably finds origin from the fact that in the phylogenetic development of the thyroid gland this organ has always been more especially associated with the physiologic processes of the female, particularly with female generative function. In West Virginia, Clark examined 13,836 school children of 11 counties, in 1913, and found 1,234 cases of goiter, which is 9 per cent of the number examined. In Virginia the same worker examined 6,432 school children in nine counties and found 817 cases of goiter, which is 12 per cent of the number examined. In Huntington, W. Va., 50 per cent of the girl students were found to be affected. In Virginia, less than one-tenth of 1 per cent of the goiters found were among boys. In Europe, an even higher incidence among school children is reported. In Bavaria, the statistics of Schittenhelm and Weichardt indicate incidence as high as 77 and 89 per cent of the total school population.

The report by Hall of 3,339 students at the University of Washington is indicative of the frequency of goiter in the Northwestern states. This writer examined 2,086 men of the average age of 20 years and 5 months, and found that 18 per cent presented enlarged thyroid glands. Of the 1,253 women examined, with an average age of 19 years and 3 months, 31 per cent presented enlarged thyroid glands. Although these figures demonstrate the widespread prevalence of goiter in the northwestern states, they probably do not afford the maximum figures in that the greatest frequency occurs during the public school age rather than the university age. A certain percentage of enlargements existing at the time of puberty would have receded by the time of university age. Also it is known that simple goiter more frequently is encountered among the low types of individuals living under unsanitary conditions, who would not be found in large numbers enrolled in a university.

Olson, working in Chicago, made examinations of 606 women and 193 men with ages ranging from 18 to 60. Among the women, it was determined that 18 per cent presented enlarged thyroids, and 7 per cent of the men were found to be affected.

5. Crotti, André: Thyroid and Thymus, 1918, Lea and Febiger, New York.
6. Dock, G.: Goiter in Michigan, Tr. Assn. Am. Phys., 1895, x, 101.
7. Hall, D. C.: The Prevalence of Goiter in the Northwest, Based on the Examination of 3,339 Students Entering the University of Washington, Northwest Med., 1914, n. s. vi, 189.

Smith, an Army surgeon, in 1918, examined 65,507 men of army age, 18 to 31, at Jefferson Barracks, and established an incidence of 1.63 per cent. The men examined were drawn from fifteen Mid-West states, including Texas. The highest incidence of goiter was observed in men from Oklahoma, where 38 per cent of 221 men examined presented goiter. The men from Texas presented goiters in 20 per cent of 141 men examined. Smith notes also that since compiling his statistics for fifteen states, exclusive of Idaho and Montana, recruits from these two states were examined and revealed a high percentage of goiter. Smith concludes that goiter is more common outside of the Great Lakes region than is usually considered, and that men are more frequently affected than reports would indicate. Kerr reports the occurrence of goiter among 21,182 troops at Camp Lewis, in Washington. These men were inducted into service from eleven states, comprising an area of approximately one-third of the United States. Of the number examined 21 per cent, or about 4,448, presented definite enlargement of the thyroid gland.

These several groups of data obtained by workers in various scattered localities are indicative of the existence of a high frequency of simple goiter among our young population, especially among young women.

No figures are available permitting any reliable estimation as to the total number of persons in this country, or any large portion of it, presenting varying degrees of this malady. An extension of Marine's figures obtained at Akron to apply to all within a school age in Ohio and other states of the Great Lakes Basin will naturally be only of approximate correctness. It is recognized that Akron, being nearer the Great Lakes district, will present a higher percentage of affected persons than will such cities as Cincinnati, situated at the periphery of the Great Lakes goiterous region; but even in such cities a high incidence of simple goiter may be noticed wherever groups of women are observed. With a full recognition of the gross inaccuracies entailed Marine's figures are extended to afford some basis of a conception of how significant simple goiter is as a public health problem.

There are in Ohio by the figures of the last census, 2,332,362 women; 432,851 are between the ages of 10 and 19 inclusive. This is the period of the greatest incidence of goiter, and is the age investigated by Marine. If the condition of the 56 per cent of involvement established in Akron obtained for the entire state of Ohio, 242,376 young women of the second decade would present goiter. At once it is to be emphasized that these figures apply to but one decade of one sex, and do not include the very high incidence of goiter in women of the third decade. Similar estimations for other states of the old Great Lakes Basin, and for other known goiter areas, yield a total figure of involvement that warrants earnest action. These figures become peculiarly pertinent in terms of the simplicity of the measures by which a continuation of this condition may be obviated.

Goiter in Animals

Goiter is not a disease confined to humans, but is found in large numbers among animals in goiter areas. It is perhaps an index of our comparative concern in human and animal welfare that goiter among animals has been the object of many practical prophylactic measures, whereas in the same district the occurrence of goiter among humans has been the object of scanty prophylactic consideration. The instances of the occurrence of goiter among animals here referred to are largely obtained from the publication of Marine. Among animals, as is true for humans, the greater number of goiters occur among the female. This is especially true of swine and sheep. Marine has already been quoted above to the effect that 90 per cent of the dogs of Cleveland are affected with goiter. The early days of the sheep industry in Michigan were found to be unprofitable in that a large percentage of the animals presented goiters. The young were many times "runts," failing to grow even when supplied suitable food, and yielding an unsatisfactory quality of wool. The abandonment of this industry was contemplated, but a fortunate discovery turned this industry into profitable channels. During the years of high frequency of goiter among sheep the salts fed these animals were obtained from a remote source. Coincident with the time of the contemplated abandonment of the sheep industry, but having no other connection with it, salt mines were opened up in the vicinity of Detroit. Shortly after the substitution of this locally obtained salt it was readily observable that the sheep so fed were better in every respect, the young were born free of goiter; they did not subsequently develop goiter, and were in all respects normal. Careful investigation established the fact that the locally supplied salt contained as an

8. Holder, A. B.: Goiter: A New Habitat, New Orleans Med. and Surg. Jour., 1912, v, 254.
9. Jones, E. G.: Goiter in the Southeast, Jour. Am. Med. Assn, 1918, lxxi, 15.
10. Kerr, Wm. J.: A Preliminary Survey of the Thyroid Gland Among 2,182 Recruits at Camp, Lewis, Washington, Arch. Int. Med., xxiv, No. 3, 347.
11. Kimhall, O. P., and Marine, D.: The Prevention of Simple Goiter in Man, II, Arch. Int. Med., 1918, xxii, 41.
12. Marine, D., and Kimball, O. P.: The Prevention of Simple Goiter in Man, Jour. Lab. and Clin. Med, 1917, III, No. 1.
13. Marine, D., and Lenhart, C. H.: On the Occurrence of Goiter in Fish, Johns Hopkins Hosp. Bull., 1910, xxi, 95.

impurity minute traces of iodin salts. The small quantity of iodin was adequate to meet the requirements of the sheep, and thus this condition in Michigan has been largely eliminated. In Montana, North Dakota, South Dakota, Washington, Minnesota, and portions of Canada, there are extensive areas in which practically all types of domestic animals present manifestations of hypothyroidism associated with enlarged thyroid. In Montana alone, G. E. Smith reports that about one million young pigs were lost annually on account of this disease. The condition was present at birth, the young pigs being born hairless and generally stunted. Many were dead at birth and few survived more than from twenty-four to thirty-six hours. The affected areas in some instances are sharply demarked. At times the district is confined to so small an area as a creek bottom one-half mile wide. Farmers have established that if their brood sows are moved out of these areas up into the hills a mile or two away, normal pigs may be born. Chemical examination of the thyroid glands of affected pigs determined that although the glands themselves were large, goiterous, the iodin content was extremely low in comparison with normal pigs. In general, the iodin content of the gland varied inversely with the degree of stuntedness of the animal's development. The addition of small quantities of iodin salts to the food of sows practically eliminated this condition among the sows so treated. In all instances normal pigs were born.

In goiterous regions not only are land animals subject to goiter, but fish as well. Seldom is goiter encountered in the native state of fish in streams; but under conditions of artificial propagation, such as those carried out by the Bureau of Fisheries, a disease known as thyroid carcinoma has been recognized for a long time. Only in recent years, however, has this condition been established as a simple goiter alike in many respects to the goiter of man and domestic animals observable in the same area. It has been noted that fish that developed goiter under artificial living conditions lost their goiters when placed in open streams. Also, it has been observed that the amount of goiter in any hatchery was in proportion to the uncleanliness and general lack of sanitation of the hatchery in which the fish propagated. So frequent and so disastrous was this condition at the time prior to its recognition as simple goiter rather than a true carcinoma, that fish culture in goiter areas was on the verge of being discontinued. Through the work of Marine and Lenhart both the nature of the disease was established and simple means were evolved for its eradication. In general these measures consisted of continued cleanliness of the fisheries, the supplying of food containing proper constituents, but particularly the addition of small traces of iodin or iodin salts to the living water of the fish. Wherever they have been instituted, these measures have eliminated goiter in fish.

The Cause of Simple Goiter

Consideration of the cause of simple goiter involves: (1) a precise exciting agency; and (2) conditions and factors that favor the development of goiter. No final statement may be made as to a precise causative factor. According to Crotti, St. Lager refers to 378 writers who offer 42 different theories as to the excitant, most of which are manifestly untenable. For a full consideration of the specific causes of goiter, reference should be made to the publications of McCarrison, Crotti, Marine, and Zueblin. The chief theories advanced center around either soil, water supply, microbic infection, or organic toxins. Precise evaluation of the various evidences offered does not permit of final acceptance of any single one of the four. Whatever be the specific cause, simple goiter may with some justification be regarded as a deficiency disease which tends to appear with greater frequency under conditions of living and working which can largely be controlled by proper hygienic and sanitary measures; such conditions are over-work, over-crowding, poor ventilation, bad water supply, lack of proper personal hygiene, the improper disposal of sewage, abnormal menstrual function, worry;—anything that makes undue demand upon the physiologic function of the thyroid contributes to the development of goiter.

The Prevention of Simple Goiter

"Simple goiter is probably the easiest of all known diseases to prevent." From the figures cited above it is evident that each year many new thousands of cases are developing. After development simple goiters are not readily amenable to treatment, only about 30 per cent subsiding under medical treatment. The usual history of the goiter is for it to develop about the time of puberty, slowly but progressively to increase in

14. Munson, E. L.: The Occurrence of Goiter Among the Indians of the United States, New York Med. Jour., 1895, lxii, 513.
15. McCarrison, R.: Endemic Goiter, Practitioner, Lond., 1915, xciv, 70.
16. Olsen, E. T.: Goiter: Its Prevalence in Chicago as Shown by the Examination of 800 Individuals from June to August, 1914, Ill. Med. Jour., 1915, xxvii, 16.
17. Roux, C.: Prophylaxis of Goiter, Rev. med. de la Suisse romande., 1918, xxxviii, 317.
18. Smith, F. M.: Statistical Study of Simple and Toxic Goiter at Jefferson Barracks, Jour. Am. Med. Assn., 1919, lxxii, 471.
19. Springle, J. A.: Goiter: Its Etiology and Incidence in the District of Montreal, Montreal Med. Jour., 1899, xxviii, 909.
20. Zueblin: Experimental Pathology of Goiter, New York Med. Jour., 1916, civ, 1186.

size for a number of years, and to recede spontaneously at some time during the third decade. A great many, however, persist throughout life, and a few develop into true exophthalmic goiter. In definite goiter areas every young girl is a potential goiter victim. Whatever be the nature of the deficiency bringing about the goiter, it can be substituted for by making available to the body small quantities of iodin through the oral administration at rare intervals of iodin salts. For two cents a year any child may be saved the disfigurement and the physical and mental disturbances accompanying goiter. The necessity of obviating goiter because of its economic and sociological import was recognized so early as 1848, when a goiter commission was appointed by the Sardinian Government to investigate and report on the causes, treatment, and prevention of goiter. This example was followed in 1864 by the French Government. In 1908, Switzerland created a goiter commission and more recently Italy has done likewise.

Although the administration of the salts of iodin has long been associated with both the treatment and prophylaxis of goiter, both among humans and animals, not until the recent work of Marine and Kimball were systematic measures devised and instituted for the prevention of goiter in humans. Since this time these measures, without having come into any general recognition in this country, have been recommended to the Swiss Government for adoption as a national measure.

The incipiency of goiter in the great majority of cases occurs in the second decade, in the ages of from ten to twenty years, at which time the greater number of persons of such ages are in school. The school organization with the school physician, the school nurses, or the intelligent teacher, affords the best mechanism for the carrying out of the simple medical procedures entailed. Twice yearly, at six month intervals, iodin salts should be administered in small doses over a period of ten days.

Any iodin preparation suitable for oral administration will provide the necessary iodin requirement for the thyroid. Potassium and sodium salts of iodin are equally efficacious, which renders the sodium salt the medicament of choice because of its low cost. Because of the deliquescence of sodium iodid, it is impractical to make use of this material in capsule form. In whatever manner the iodin material is administered, it should be accompanied by careful educational measures, in order that the rationals of these procedures may become common knowledge to all, so that these measures may be continued in post-school life.

The details of the measures advocated and carried out by Marine and Kimball are as follows: The prophylactic work was limited to girls. A careful census was made of all girls between the fifth and twelfth grades, inclusive. A suitable card was devised on which was recorded the results of physical examination with particular reference to the condition of the thyroid. Particular care was exercised that no person presenting manifestations of exophthalmic goiter should be subjected to the harmful action that iodids have on this infrequently encountered type. Both the young women free from goiter and those presenting simple goiters were treated with sodium iodid. Large groups, with and without goiter, were untreated and served as the basis of reckoning the results of treatment. The doses used and the duration of treatment are probably in excess of actual iodin requirements, but because of the known harmlessness of the material used it was deemed expedient to provide an excess. Subsequent developments may establish that a single dose of the iodin material is sufficient. Two grams (30 grains) of sodium iodid, divided into 0.2 gram (3 grains) doses were given each school day to each pupil in the fifth, sixth, seventh, and eighth grades. Each pupil received 3 grains of the material each day for a period of ten days. For the ninth, tenth, eleventh, and twelfth grades, the daily dose was doubled under the same conditions. It was recommended that these amounts be administered twice annually, May and December being suggested as the most suitable months. The material may be given at the school under the supervision of teachers or nurses. Bottles of the sodium iodid solution were distributed to the several schools. The solution was so prepared that the suitable dose was dissolved in 5 cc. of water, which in turn may be measured out to the children in small graduated glasses, which are obtainable at low cost. It is pointed out that from 25 to 30 mg. of iodin saturates the normal thyroid gland and, inasmuch as approximately 1,700 mg. are available in the doses given, obviously the iodin requirements are fully provided for; in fact, it is reasonable to believe that in giving so large a dose a prodigious waste of the medicament takes place. Among the 4,415 girls under observation no harmful results arose, except in that 0.5 of 1 per cent developed an iodin rash, which is of only trivial import and which quickly disappeared upon the termination of the treatment. Such measures were carried out by Marine and Kimball first among 3,872 girls and, later, among the same group with an increase up to 4,415 girls, and the following results were obtained: of 283 girls having normal thyroids at the time of the inaugura-

tion of the treatment, not a girl developed an enlarged thyroid; 100 per cent remained normal. Of 996 pupils having normal thyroids at the outset, who did not take treatment, only 637 remained normal from April to November, 259, or 26 per cent, developing slight goiters. Of 428 women having small goiters at the time of the inauguration of treatment, in 33.5 per cent the goiters wholly disappeared under treatment, while of 769 women having small goiters who did not submit to treatment in only 1.2 per cent the enlargement spontaneously disappeared. In other words, these prophylactic measures have reduced, in Marine's observations, the normally high incidence of goiter to zero.

Summary

The prevalence of simple goiter described above is common to many portions of this entire country. Low cost and readily applied measures have been devised for the eradication of this condition. These measures, although not yet fully standardized and simplified, have been demonstrated to be harmless and practicable. The school age coincides with the age of the highest incidence of goiter. The public and high school systems afford a splendid mechanism for carrying out these measures. It is believed that faithful application of these measures by public health workers, school, and industrial physicians will go far in stamping out this widespread and distressing malady.

BACTERIOLOGISTS MEET IN BOSTON

The meeting of the Society of American Bacteriologists held in Boston December 30 and 31 covered problems of recent research on such subjects as pneumonia, chronic empyema, influenza, dysentery, arthritis, diphtheria toxin, and many other related topics. Dr Francis J. Blake, of the Rockefeller Institute, presented some views on the pathogenesis of lobar pneumonia, which may have important bearing on the treatment of the disease in the future. "The Routes of Infection of the Lung in Pneumonia," also an illustrated lecture, was presented by Dr. George H. Smith, of the Yale Medical School. In an exhaustive discussion of "What Is Influenza Bacillus?" Dr. T. M. Rivers, of the Johns Hopkins Hospital, declared that the only true influenza bacillus is the one first grown and described by Pfieffer in 1893.

Officers were elected as follows: Dr. Charles Krumwide, of the Research Laboratory of the New York Health Department, was elected president of the society in place of Dr S. C. Prescott, of Boston whose term expired. Dr. F. C. Harrison, president of the MacDonald College in Montreal, was elected vice-president; Dr. A. Parker Hitchens, of Indianapolis, was reëlected secretary-treasurer, and Dr. J. W. M. Bunker was chosen assistant secretary, a new position in the organization. New members of the council are Dr. F. P. Gay, professor of pathology and bacteriology at the University of California and Dr. C. G. Bull, professor of immunology at the Johns Hopkins School of Hygiene in Baltimore.

SERUM THERAPY IN PNEUMONIA

One of the fruitful fields in the development of studies in immunity is the practical application of its principles in establishing by artificial means a resistance to the toxins of the pneumococcus. The preparation of the vaccines is an exact science and the use of sera in properly selected cases of typed strains has commanded the attention of clinicians to a marked degree in recent months. With the perfection of technic it is hoped by the advocates of the procedure to find the means of combatting the dread disease, pneumonia. We present herewith the description of Robert W. Mackenna[1] of the toxic action of the pneumococcus.

The Production of Antibodies

"Once it was believed that an infectious disease used up some pabulum of food which it found in the patient's system; and, as it was supposed to destroy this pabulum, there was none left for a second attack of the disease to feed on; but now it is recognized that, whatever substances a disease may destroy in our blood, it enriches the blood by causing the prophylactic mechanisms of the body to elaborate protective agents. When a microorganism invades the human body, *pari passu* with the production of poisons or toxins whose effect may be lethal there are produced substances that are inimical to the growth of the germ. . . .

How Protective Organism Operates

"If a person become infected with pneumonia we have a striking example of how the protective mechanism in the body operates. Pneumonia is an acute inflammation of the lungs, and it is now known to be due to a microörganism. The germ invades the lungs and begins to multiply there. The earliest symptom of which the patient is conscious is usually a sensation of chilliness, followed by violent shivering. This is the first evidence of the protective mechanism in action.

Protective Mechanism

"The sensation of chilliness is due to a contraction of the blood vessels in the skin whereby as much blood as possible, and therefore all the available leukocytes may be hurried to the invaded part. The violent shivering, which is due to rapid and repeated contractions of muscle fibers throughout the body, is involuntary, but purposeful and protective, for active muscular exercise is the speediest means of increasing bodily heat. A temperature of 102° F., and over, is inimical to the growth of microörganisms, and the patient's temperature is rapidly elevated above that degree as the first step in the protective scheme.

Organisms Produce Poisons

"As the organisms grow they produce poisons or toxins which are thrown into the circulation, and which may have a deleterious effect on the muscle fibers of the heart, and the nerve ganglia which control its action. The heart already has a sufficient mechanical strain thrown upon it, as it requires extra power to maintain the circulation in a lung which is rapidly undergoing consolidation.

"But the protective functions of the body are at work, and are rapidly producing substances which are antagonistic to the toxins, and to the microörganisms which are the cause of the disease. These substances are known

[1] Mackenna, Robert W. The Adventure of Life, The Macmillan Co., New York, 1919, $1.25.

as antitoxins, and they unite chemically with the poisonous products of the organismal growth, and render them inert to the living tissues. What part of the antitoxin is not required to neutralize the toxin remains over to exert its effect on the germs,—an effect prejudicial to their further development, and therefore beneficial to the patient.

Toxin and Antitoxin

"The occurrence of what is known as the 'crisis' in pneumonia, when the temperature rapidly falls, the rapidity of the heart beats and the respiratory rate come down to something like normal, and the patient in the course of a few hours undergoes a marked change for the better, indicates the point at which the amount of antitoxin elaborated in the body exceeds the amount of toxin, and so can neutralize it.

"In pneumonia we are therefore witnesses of a race between the production of toxin and antitoxin; and if the heart can hold out while the contest is at its hottest, a point will be reached when the antitoxin will overpass the toxin, and the patient will recover. Observations of this kind have opened up an immense field of curative endeavor. Repeated small successive doses of artificially produced antitoxins can be administered until a state of tolerance is established in the patient toward the disease.

". . . All modern treatment founded on the administration of vaccines, antitoxins and antisera has been built up from the recognition of the protective mechanism existing latent in the body. . . . There is little doubt that all dwellers in cities are daily being immunized against various diseases by the continuous ingestion or inhalation of disease germs. . . . Civilization and acquired tolerance of disease proceed hand in hand."

Fig. 1. In the culture of the germs of pneumonia, the most careful microscopical examinations are regularly made to make sure that the culture has remained pure,—that is, uncontaminated with other germs, and of a single type. (Photo by Underwood & Underwood, N. Y.)

Fig. 2. In testing the protective value of pneumonia serum, dilutions of cultures of living, virulent pneumonia germs are prepared for injection into white mice. This illustration shows bacteriologists making such solutions. (Photo by Underwood & Underwood, N. Y.)

AMERICAN SCIENTISTS MEET

The eighteenth of the convocation meetings inaugurated by the American Association for the Advancement of Science was held in St. Louis the week of December 20, 1919, to January 3, 1920. "Chemistry as It Is Taught" formed the subject of Alexander Smith's contribution. "The Message of the Biologist," and "The Relations of Psychology and Anthropology" were presented by William Patten and Ales Hrdlicka. Dr. C.-E. A. Winslow's paper[1] on "The Untilled Fields of Public Health" sounded a warning that the medical fraternity and scientists are "without defense and are practically powerless to combat" a possible recurrence of the influenza epidemic.

Dr. F. S. Lee made a plea for the larger use of scientific measures to increase, by proper use, the physical powers of workmen. "I am convinced," said he, "that the time is coming when all industries will have permanent staffs of physiologists to keep in tune and overhaul their human machinery, just as they now employ engineers and mechanics today. A maximum amount of work will thus be obtainable." Doctor Lee considers that efforts aimed merely to shorten the hours of labor are beside the mark if they do not include a scientific study of fatigue, and if they are not planned to better conditions for the workman.

Infectious Diseases Taking Recess

Warnings were issued that influenza, spinal meningitis, and infant paralysis have not been wiped out, but are merely "having a recess." Dr. Simon Flexner, president of the Association, explained that progress has been made in the fight against cancer and that "medical research is gradually getting into a position of strategic superiority" in its attack on this malady. He made reference to the work of Doctor Noguchi on a serum that may rid the human race of the scourge of yellow fever.

Sociological and psychological theses made an opening for the introduction of discussions of current events which led to a ruling that future sessions will bar all matters which have no direct connection with scientific research. The papers constitute a symposium of the most important work now under way, and their publication will be a direct contribution to scientific literature.

[1]This paper wil' appear in an early issue of MODERN MEDICINE.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

DR. CHRISTIAN R. HOLMES, MASTER BUILDER, MEDICAL STATESMAN

THE death of Dr. Christian R. Holmes, on January 9, was the signal for carrying the flag at half-mast on many hospitals and public buildings of the country, and leaves a void that can scarce ever be filled. Especially significant is his death to those of the profession and laity who think and act in social terms, who appreciate the sacrifice, the labors that go with conscientious, well earned community leadership.

Particularly impressive is his life reviewed in these hours when our democracy is under fire —when even strong men question the future and wonder whence the leadership will come to stem the despairing tide. To the faint heart let this life give courage.

Skilled in his surgical arts, honored by his *confrères*, revered by his patients, Dr. Holmes really first found himself when a dozen years ago he began his public career as the builder of the Cincinnati General Hospital. In making himself master of the intricate and complex problems of this great undertaking he found real self-expression. The urge of service to his city, his daring dreams of its future medical needs drove him on, despite all opposition; in fact, he seemed to gain strength through temporary failure. He never faltered, in any imposed duty, no matter what political or financial obstacles were placed in his way.

The late Christian R. Holmes, Cincinnati physician, who was a builder of the Cincinnati General Hospital.

It is unusual for men to avoid the temptations of ease and luxury that come with prominence, success, and wealth. Dr. Holmes took seriously the stewardship that was conferred upon him by these three possessions. He had the prescience to realize the joy that may come to anyone by reaching out beyond the narrow confines of any specialty in medicine. Much as he honored and enjoyed his professional work, excellent as was his technic, he realized that his energies, his creative faculties were better to be used elsewhere, in a broader field. Other hands, other brains could perhaps equally well do his former work. He preferred to use his powers to lead the profession and the people of Cincinnati to build better than they knew for the medical and surgical care of the present and future generations.

And thus by sheer devotion to his avocation, Dr. Holmes, who by professional tradition should have been an extremely narrow individualist, acquired the broadest viewpoint of medicine from its social aspect. Adequate hospital service for his community became and remained to his end a personal obligation.

Might we not here sense the broad opportunities for rendering great service afforded other members of the medical profession? If physicians could but realize their especial capacity for civic leadership, many who are now but half-

happy in the daily repetition of their professional tasks would break their bonds, develop a broader human understanding and relationship, add new zest to their old work, and through some community service make lasting impress upon the *zeitgeist* and leave a real heritage to the coming generations. Never in the history of medicine, which is at the turning of the way, was there greater need for such constructive leadership.

The creative energy of Dr. Holmes was unsatisfied by the completion of the hospital. It became immediately focused on the construction of a great medical college and faculty. Here again his zeal to acquire the best ideas in the arrangement of the structure, his infinite patience with detail, his endless quest for helpful conference, resulted in a plant that was excellent architecturally, mechanically, and physically.

As Dean of the Medical College he gave unstintingly of his time and boundless energy, never faltering, always optimistic, ever energizing. Of necessity this type of nature made mistakes that the cooler, dispassionate, less energetic, neutral type of individual would not make, but the final test lies in the works that he has left behind him. The new Department of Industrial Medicine and Public Health, initiated in the Medical College last spring, became his latest enthusiasm. Its success was recurrently on his mind during the months of his final illness. If it succeeds, it will be another expression of the remarkable broadening of his social concept of medicine.

Of him it may be said, "He has gone to the Great Beyond" from a great present. His memory will endure as Citizen Holmes, master builder, patriot, medical statesman, public servant.

EDITOR.

LOUIS I. HARRIS DEFINES POLICIES OF INDUSTRIAL HYGIENE BUREAUS

"Preventive public health medicine has in the past several years suffered from retarded development, despite the fact that our knowledge of methods for the prevention of disease has been greatly enriched," said Louis I. Harris, M.D., discussing the subject, "Industrial Hygiene," before the annual meeting of the Medical Society of the State of New York.

"In the last two decades, the application of this knowledge in public health administration has been fitful and sporadic," he declared. "State and municipal public health organizations are altogether too prone to concentrate upon some more or less narrow province of public health work, and to create a number of independent divisions without any well-knit, coherent, and harmonious program, which would unite them all in a broad and comprehensive campaign for the prevention of disease."

The significance of the steps taken to bring industrial diseases and working places more directly under the supervision of public health officers, Doctor Harris has pointed out in the following words:

"The work in industrial hygiene, which it has been the privilege of the writer to organize for the Department of Health of the City of New York, has, since 1915, when it was initiated, more clearly and definitely become the expression of a tendency to bring the intensive activities in the prevention and control of tuberculosis, venereal disease, and other communicable diseases, of occupational diseases and degenerative diseases, into closer union. The introduction of industrial hygiene has reacted on the formerly disjointed and unrelated activities of the Bureau of Preventable Diseases to produce harmony, and is tending increasingly to make the work of the nurses and physicians in each of these respective fields supplement and enhance the value of each division of work which is comprised in this union of activities."

One of the essentials in industrial hygiene is the reporting of occupational disease by private physicians and by institutions which care for the sick. These reports give a clue in practically every instance of the existence of industrial conditions which are a hazard to health and to life. Upon receipt of such information, a medical inspector is sent to investigate the factory in regard to all conditions which may directly, or indirectly be responsible for the disease. For instance, the report of cases of anthrax led to the investigation of shaving brush factories, the results being submitted to experts in the manufacture of brushes, in the hide and leather industry, and in related branches of the work before regulations were adopted by the Board of Health.

The need of competent, industrial hygienic experts furnishes the best possible reason why medical colleges should give great heed to this subject and should equip medical men, not only with a knowledge of occupational poisons, but prepare them to render preventive health service in this field and to recognize the injurious effects produced by defective ventilation, the presence of various kinds of dust, or conditions which produce degenerative diseases through undue muscular exertion, or through the effect of fatigue.

Child hygiene, which was acknowledged some years ago as a distinct phase of public health effort, and which should have been extended to include adolescent and adult hygiene, has, as a result of the failure of public health officials to establish the two last named as distinct branches of public health medicine, been singled out for special distinction. Human life is precious without regard to age, and the prevention of infant mortality and protection of child life should be accompanied by an equally intense and unrelenting campaign to prevent the causes of disease and death which operate during the period when the child is entering womanhood or manhood and during the subsequent period as well. Yet we can point to no public health defensive organization which is comparable to that of child hygiene bureaus. This must stand as a reproach until bureaus of adult hygiene are established and all persons, without regard to age, enjoy in fair measure the protection of public health agencies.

HEADS INDUSTRIAL RESEARCH

Dr. William H. Walker, for many years head of the Research Library of Applied Chemistry at the Massachusetts Institute of Technology, has been named as head of the Institute's new division of industrial cooperation and research. Doctor Walker was connected with the Institute for twenty-five years before the war, and during the war served as Colonel in the Chemical Warfare Service. He was in command of Englewood Arsenal, Maryland, and was awarded the Distinguished Service Medal.

HUMAN ENGINEERING—A NEW MEDICAL SPECIALTY

By FRANK LESLIE RECTOR, B.S., M.D., United States Public Health Service, Brooklyn, N. Y.

THE awakening conscience of the industrial world has brought to the fore many problems of human relations that were either not thought worthy of serious study on the part of the management or were disregarded for other, often selfish, reasons. In many establishments the worker was too often just a shop number, or a cog in the great pulsating machine of the organization with which he might happen to be identified. Such employees worked by the clock and frequently learned to watch the clock more closely than they did their work, with the result that interest lagged, production both in quality and quantity lessened, and a chasm of mutual indifference and mistrust gradually opened between them and the management. Relatively few efforts were made to span this chasm, or obliterate it by mutual understandings and sympathetic supervision and considerations for others. Help was plentiful and, as no great effort was made to determine the cost of separations, with the consequent replacements by green help, there was developed a class of workers who lacked the desire to make permanent industrial connections.

A New Evaluation Made

Then came the war, and the "work or fight" edict brought to many the realization that here was a vast army in no condition to fight in the front ranks, but who must be utilized to fill the depleted ranks of those who were chosen for this greatest of all work. Many problems had to be solved and obstacles overcome in order to mould this large and unwieldy force into an effective, productive unit. The spur of necessity for delivering materials so sorely needed in military work made it necessary to increase production by the quickest and easiest means available. This means usually took the form of increased wages but, as the desired results were not obtained by this method alone, it became necessary to foster the spirit of cooperation between management and men.

With the advent of peace it was realized that the supply of world labor had been dealt with disastrously as some twenty million able-bodied workers had been removed from the industrial sphere. This devastation, occurring principally among the industrial groups of Europe, presented an opportunity for the United States to grasp a larger portion of the world's commerce. To cope with this situation successfully, greater unit production became necessary. The close of hostilities saw an exodus of workers to their native land which produced a condition of possible shortage of labor as considered in connection with the probable restrictions on immigration that will be placed in force by this Government. The situation created has caused those in charge of industries to apply themselves seriously to the question of increasing production in order to take their proper place in the larger opportunities unfolding before them.

Cost of Labor Turnover

It was during the war that the enormous loss from labor turnover was realized and an earnest effort made to check it. It was found that increased wages exerted little influence. Employment departments were organized to deal with the matter by a selection of the applicant on the basis of previous training and efficiency. Health was seldom considered as having an influence upon the ability to hold a position.

This high turnover brought many industrial accidents in its wake, and these had to be taken care of. State compensation laws required that. It was then that the medical man was called into closer association with industry than ever before. A comparatively new field was opened to the profession, and some few of its members were quick to grasp the opportunity and to see the possibilities of what the industrial field held in store for them. The men of vision were few compared to the large number who took their work as a matter of course; but those few have placed an indelible stamp upon industrial medicine and have formed a solid basis upon which this special branch of medical practice will be built. Unlike most other medical specialties, this one is rooted in the principles of preventive medicine as it has to do with keeping the worker well, contented, and satisfied with his job. A contented and healthy worker can produce far more than a dissatisfied and sick worker, and industrial management is learning the simple lesson that it pays to make and keep a man well and happy.

To this new specialty, usually termed Industrial Medicine, I prefer to give another name, one that more clearly defines the real scope and possibilities of what the work offers, the name of Human Engineering; for it clearly covers fields usually thought far removed from that of medicine, but which I hope to show is closely asso-

ciated with the medical field when considered industrially.

The Field of Human Engineering

The field of activity of this work is limitless. It has been estimated that among the forty million industrial workers in the United States there are two million lost-time accidents yearly entailing a loss of time of more than one day each. Of this number, 750,000 sustain a disability of more than four weeks' duration. About 22,500 are killed, and from 15,000 to 18,000 more suffer permanent disability. This loss is estimated to be more than 18,000,000 man-days per year, or the working time of over 60,000 persons. Each industrial worker is sick on the average eight days per year which amounts to the time lost of more than a million working people for one year. The loss in wages is more than one million dollars per year, to say nothing of the loss in production, the cost of medical attention, and the cost to the community of the permanently disabled workers who cease to be self-supporting. There is no greater problem before the country today than this problem of caring for the industrial worker. There is no one in the country today that can better cope with this situation than the properly equipped industrial physician.

Not only must the industrial physician of the future rid himself of the designation of the "Company Doc" who took care only of what came his way, but he must be able to interpret industrial processes, understand the operation of mechanical appliances; size up the human requirements for filling a certain job; make scientific studies into the hazards of occupations; make certain that proper working conditions are provided for the industrial population; and interpret these findings in terms of increased production, decreased turnover, and healthier and happier workers. He should also be able to tie up the home, community, and industrial life so that each would bear its share of carrying forward the great commercial life of the nation.

The human engineer comes into intimate contact with four departments of an industry:—*viz.*, employment, safety, medicine, and welfare, if he is fulfilling the obligations of his position he must know intimately and well the workings of each branch of this industrial relations group. By making a physical examination of applicants for employment he exerts a direct influence upon the placing of workers. If he properly follows up accidents, he comes in contact with the safety department. Of course he dominates the medical department and, if he has the proper interest in the worker away from his factory job, he must be familiar with what is being done in the home and community life of the workman.

Let us look at some of the details of contact with these agencies within the plant. The human engineer will, first of all, be called upon to determine if an applicant who is fitted by training or otherwise for the job he seeks is physically capable of filling the position. To make an intelligent application of his physical findings he must familiarize himself with the different jobs in the plant, with the several steps in the manufacturing processes, and then formulate a set of standards with which the applicant must comply in order to fill the position to the best interests of both his employer and himself. A worker may be unsuited for a job by reason of physical defect of which he may be ignorant, by stature, temperament, age, education, or other reason. The human engineer will determine these conditions, as well as the mental attitude of the worker toward his work at the time of making the physical examination, and will be able to place the worker where he best fits into the scheme of the organization. Communicable diseases can also be detected at this time and their introduction into the plants prevented. Measures looking to the correction of such defects as flat feet, impaired vision and hearing, decayed teeth, and others of a similar nature can be instituted at the time of making the physical examination, so that the worker is able to approach his task in the best possible physical condition.

Without the physical examination to discover the defects of the applicant useful members of the industrial community are oftentimes denied employment. One of the big problems the human engineer can help to solve is that of placing the handicapped worker where his services can be of the greatest value to the industry. By so doing the economic independence of the worker is assured, his mental attitude is directed into right channels, and he becomes a community asset rather than a liability. By placing the worker to the best advantage the work of the employment department is lightened by reducing turnover, a thing always costly and to be avoided. The worker has also been made to feel that some one has his interests at heart in thus placing him in his work.

Surgical Care Plus

The human engineer's contact with the safety department usually begins when an accident case is brought to the dispensary for treatment. In addition to caring for the injury be makes an investigation as to how the accident occurred and in cooperation with the safety engineer, de-

termines ways and means to avoid recurrences of that and similar cases. He may find that the work is fatiguing, due to faulty posture, poor ventilation, or to bad lighting (which may be poor lighting or too brilliant lighting with the production of glare), or to other conditions susceptible of correction. These matters are all within the scope of the safety department to correct, but this department is seldom equipped to discover them and to associate them with the cause of the accident.

His researches will lead him to consider occupational poisonings when the processes suggest such possibilities. The physical re-examination of workers in hazardous occupations will result in the accumulation of scientific facts of known value with which to replace the oftentimes erroneous opinions now held regarding the dangers and hazards of certain occupations.

In addition to caring for the accidents that occur, the human engineer should repair the temporary defects of the workers which tend to reduce their effectiveness to a considerable extent. Many times workers report for duty with headaches, indigestion, beginning colds, and other seemingly trifling ailments which can be relieved or eliminated by prompt application of therapeutic measures. By this means a day's production can be added to the factory output, and the worker will have the added satisfaction of knowing that his small needs are cared for in a sympathetic manner. He will also appreciate the fact that there is someone to whom he can go for consultation and advice regarding such minor ailments as may develop in the course of the day's work. The prompt attention to minor accidents will prevent infections, which always result in much lost time, wages, and production.

Correlating Community Conditions

While making a thorough study of the human machine in its industrial surroundings, the human engineer will seek further light regarding the worker's home and community life. Here his contact with the welfare department begins, but should not end until home conditions have been investigated and the fact determined if they have had any influence upon the worker when he was injured. A sick member of the family may cause such uneasiness of mind of the worker that he will be careless and much below par in his work. The human engineer may also be able to determine if there is unsympathetic supervision over this man's work by the foreman. A domineering and overbearing foreman can do more to reduce output and breed discontent than almost any other factor in an organization.

The human engineer will not stop at treating the patient and removing the disabling cause, whether it be due to industrial or home life. There exists the opportunity of planting the seeds of preventive hygiene in the broad sense in the minds and hearts of those with whom he comes in daily contact. Here the great field of preventive and social medicine opens before him and he has unlimited opportunities of sowing the seeds of right living in this soil. Short and simple messages on home conditions, personal hygiene, proper food and clothing, proper habits of body and mind, and the sure penalty suffered from neglect of these matters, can be placed before the industrial worker with an influence that can be obtained in no other way.

The question of mutual benefit associations, old age pensions, recreational and amusement facilities, community hygiene and sanitation, especially improved milk and water supplies, sewage disposal, and related matters having a bearing upon the worker's surroundings or state of mind, all come within the scope of the activities of the human engineer, if he but applies himself to them in the proper relation. The more closely his industry dominates the community, the greater are his privileges and duties in community associations.

Organization and Statistics

This engineer must be an organizer and executive as well as a statistician, if he is to fulfill the highest purpose of his work. Careful records must be kept of turnover, accidents, illness, and absence, not of the plant in its entirety, but by departments and occupations; and these records must be correlated and analyzed so as to show where deficiencies lie and upon whose shoulders the responsibility for their correction rests.

From what has been said, it is evident that the position of this new member of the industrial community is an important one. He should be the administrative head of the industrial relations group of activities. His place as head of the medical department is assured by education, training, and experience. He should direct the work of the employment department, by reason of his knowledge of individual workers gained through physical examinations, by the requirements of the job, and by a knowledge of working conditions. He should control the safety work by his contact with accident cases and his knowledge of plant processes and hazards. He should supervise the work of the welfare department, by reason of the intimate contacts that have been established by dealing with workers in other departments and in their homes. Combine these duties with those

of the interpretation of factory records having a direct influence upon production, the opportunity for education along the lines of preventive medicine, and the influence he has in shaping the social and community life, and it must be conceded that the member of the medical profession who accomplishes these things is entitled to add the degree of Human Engineer.

THE EMERGENCY SERVICE OF THE J. I. CASE THRESHING MACHINE COMPANY

By JOHN E. KONNAK, Superintendent, Employees Benefit Association, Racine, Wis.

THE first emergency hospital at the J. I. Case Threshing Machine Company plant became a reality in 1907. This was enlarged from time to time until the present complete hospital was recently put into operation.

The present hospital consists of a dressing room, 15x25; an x-ray and examination room, 12x22; a rest room 10x12; a dark room, a store room, and a spacious waiting room. In addition there is on the same floor the office of the superintendent of the Employees' Benefit Association.

The hospital is done entirely in white. The floors are tile and the walls of the dressing room are finished in marble. The dressing room is equipped with modern surgical apparatus and the x-ray room contains a modern x-ray machine with fluoroscope accessories, a scale, blood pressure apparatus, and such other apparatus as is used for the various analyses. The light in the hospital on account of its many large windows is ideal, while the artificial lighting is perfect.

The hospital is under the able management of Nicholas B. Wagner, a graduate of Rush Medical College, who spends his entire time at the factory taking care of the injured men and advising the sick. He is assisted by two graduate surgical nurses.

Hospital Care for Minor Cases

In all accidents, no matter how slight, we insist that the employee must report to the hospital for treatment. We have long been convinced that it is the little things that become serious. The big things generally come to the hospital, while the men with the slight injuries usually wait until they become serious before reporting.

For the last three months prior to this report, August, September, and October, 1919, 2,436 injuries were treated at the hospital, classified as follows:

Lacerations	716
Eyes	669
Abrasions	462
Contusions	230
Slivers	122
Burns	94
Punctures	53
Emery grind wounds	40
Strains and sprains	23
Scalp wounds	19
Infections and boils	17
Fractures	6
Amputations of fingers	2
Redressings	3,225

Of these, the 90 which were disabling accidents caused a loss of 627 man days, an average of 7 days per accident.

In the case of permanent or partial disability requiring payment of compensation, such charge is made against the department where the man is injured. This puts the foreman on his mettle and encourages the use of safety devices and further avoidance of accidents.

Consultation Service Urged

Besides these injury cases there are sick calls at the hospital. Here again we believe that "a stitch in time saves nine." We encourage a man, when not feeling well, to come to the hospital and consult with the doctor. After an examination he is advised as to the best course to pursue. If his ailment is slight, he is given a prescription or medicine carried in stock at the hospital. This is given to him without charge. A world of good is accomplished in this way and many employees are saved from serious sickness. That the men take advantage of this service is shown by the fact that during the past three months there were 1,840 medical calls at the hospital.

Then we have a follow-up system where employees are reported sick. The doctor calls on them personally to see how they are getting along and gives them such advice as they may ask for. During the past three months 293 medical calls were made at the homes of employees.

Connected with the hospital, we have the Employees' Benefit Association of which 90 per cent of our employees are members. Every member of the association is given a thorough physical examination. Those who have defects are advised how to take care of themselves and a remedy is suggested to cure the defect.

The Employees' Benefit Association of the J. I. Case Threshing Machine Company was organized January 1, 1909, its object being to provide its members with a certain income when sick or when disabled by accident, occurring either on or off duty, and to pay to their families certain definite sums in case of death; to create and maintain a fund which shall belong to the employees, to be used in payment of benefits to them, and to cost them the least money possible in consideration of the benefits received.

The management is under a board of trustees, consisting of twelve members, six chosen by the employees who are members of the Association; members whose earnings equal or exceed $166.66 per month.

Contributions are 2 per cent of the member's monthly earnings; in other words, a member in Class 14 would earn $85 per month; 2 per cent of this would be $1.70, his monthly dues. If this member should be injured in the factory he would receive 2 per cent of his monthly earnings per day, or $1.70, from the time of injury until his return to work, not to exceed fifty-two weeks. If this member should be off long enough to draw state compensation, it would be paid to him in addition to the $1.70 per day. If this member were taken sick or met with an accident while

The emergency hospital of the J. I. Case Threshing Machine Company is equipped throughout with the most modern surgical appliances. Marble and tile construction lend to its beauty and to its perfect sanitation.

and an equal number chosen by the Board of Directors of the company. The Board of Trustees appoints the Superintendent of the Association who, under the direction of the Board of Trustees, has charge of all business of the Association.

All employees who apply for membership and conform to the regulations may become members of the Association. At present we have 4,000 employees of whom 90 per cent are members. There are twenty classes of members, numbered from 1 to 20. The highest class in which an employee may be a member is determined by his regular or usual pay. Class 1 is for employees having the lowest salary, while Class 20 is for

not on duty, he would receive 3 per cent of his monthly earnings per day, or $2.55, the benefits payable for a period not to exceed fifty-two weeks.

If this member should lose the sight of one eye, he would receive six months' wages, or $510, and state compensation. If he should lose the sight of both eyes, he would receive two years' wages, or $2,040, and state compensation. If he should lose one hand or foot, he would receive one year's wages, or $1,020; if two hands or feet, he would receive two years' wages, or $2,040, and state compensation. If he should die a natural death or meet with an accidental death while off duty, his beneficiary would receive one year's wages

or $1,020, and state compensation. If he meets with an accidental death while on duty, his beneficiary would receive two years' wages, or $2,040, together with state compensation.

The Employees' Benefit Association of the J. I. Case Threshing Machine Company was organized for the employees and is run by the employees. As to comparison of benefits afforded to members, we stand alone in the extent and character of service rendered.

RESTAURANT FACILITIES FOR SHIPYARD WORKERS

By FREDERICK S. CRUM, Assistant Statistician, The Prudential Insurance Company of America; and Statistician, Labor Requirements and Statistics Branch, U.S.S.B., E.F.C., Philadelphia*

EXTENSIVE and careful surveys and inquiries made preliminary to the preparation of the government pamphlet[1] published under the caption of this paper proved indisputably the urgent need for more adequate restaurant and lunch room facilities in industry. The good success obtained from the installation of such facilities sustaining but, what is of even greater importance, by their direct contribution to the health and industrial efficiency of the workers. Many employers have testified that "it pays in actual dollars and cents to supply a wholesome, nourishing meal to an underfed employee." They have discovered that "an anemic industrial army is

Fig. 1. The urgent need for restaurant and lunch room facilities by shipyard workers was met by the New York Shipbuilding Company in the provision of this building at Camden, N. J. This is the exterior view during a busy hour. (Photo by courtesy of New York Shipbuilding Company, Camden, N. J.)

for the benefit of shipyard workers leads to the publication of certain details for the managers of other industrial establishments who wish to undertake the task of making such provision.

The value of company restaurants has been demonstrated again and again. Their success is proved not merely by the fact that they are self-predestined to retreat and defeat," for its efficiency is dependent upon the quality and the quantity of their food supply. "In almost every instance where the experiment has been tried, its success has led to extension of the service."

The Metropolitan Life Insurance Company reported immediate and continuous benefit from the addition to the mid-day meal made possible through the installation of their lunch room. A small experiment of the kind by the National Cash

*Restaurant Facilities for Shipyards Workers; second edition published by the Industrial Relations Division, U. S. Shipping Board, Emergency Fleet Corporation, Phila., 1918. Copies of this pamphlet may be had on request.

Register Company gave such noticeable results that an extension of the experiment was carried to notable proportions. The National Biscuit Company of New York consider that their restaurant has been a "notable investment." The American Sheet and Tin Plate Company, of Pittsburgh, now operates ten restaurants in their several plants, which they believe keep their workmen more healthy and contented. The Illinois Steel Company added to their general encomium of the plan the statement that it makes an essential contribution to industrial betterment and promotes good fellowship and interest in the place of employment.

Fig. 3. Exterior of restaurant operated by Merchant Shipbuilding Corporation at Harrisburg, Pa., for its employees.

Success Depends on Feeding

No one has successfully refuted Napoleon's statement that "An army travels on its stomach."

Fig. 2. This interior view shows the self-service plan of the New York Shipbuilding Company, Camden, N. J. (Photo by courtesy of New York Shipbuilding Company, Camden, N. J.)

If it is true that military success is dependent upon the proper feeding of the soldiers, it is equally true that if the best results are to be obtained from workers in the shipyards or other industrial plants, adequate provision must be made for satisfying their demands for food with the kind that is most suitable for them, and under conditions best calculated to keep them contented. The published report goes thoroughly into the subject, presenting sketches of cafeteria layouts which are regarded as most suitable for industrial plant and shipyard purposes. The sketches were delineated by Mr. Walter DeMordaunt, who at the time was architect of the Statistical Department of the Emergency Fleet Corporation, and these plans were of restaurants then in successful operation. Mr. DeMordaunt, however, was able to make certain additions through his knowledge as an architect and to suggest some very important and, what have proved to be practically useful, additions. Especial attention was devoted to health and sanitation in connection with cafeterias, and this was prepared under the direction of Lieut. Col. P. S. Deane, M.C., U.S.A., head of the Health and Sanitation Department of the Emergency Fleet Corporation. Accounting features of cafeteria management were reported upon by Mr. Gordon Wilson, who at the time was general auditor of the Emergency Fleet Corporation.

At the time these studies were made, the food purveying conditions in many of the shipyards and other industrial plants were little less than scandalous; either no facilities at all were available at or near the yards or plants, or the men

were compelled to patronize unsanitary lunch rooms, saloons, lunch wagons, etc. The average quality of the food was, to say the least, very unsatisfactory. On the other hand, some of the yards had as early as August, 1918, felt the need of better restaurant facilities. The data supplied in the published report for guidance and standardization in installation of equipment of this kind were gathered from those who had already met this particular need of their employees. General principles of economical and serviceable construction are discussed. The location of the kitchens and mess halls is important, and space requirements are governed by the exin an orderly line. The counters should be so constructed as to furnish the maximum protection to the food while making it accessible to the workmen. Self-service counters should carry a front rail on which trays can be slid along as they are being filled.

Ample space is required in the entrance and exit passages, and in the kitchen and in the mess halls. The proper dining room space is from eight and one-half to ten feet per person seated. The tables and seats should be as attractive as possible without being fancy. The tops of the tables should be of materials easily cleaned. A swinging type of window gives very much bet-

Fig. 4. View in one of the large sections of the employees' restaurant maintained by the Merchant Shipbuilding Corporation, at Harriman, Pa.

pedition with which the men need to be served, as well as by matters governing general utility. Questions of sanitation, ventilation have a special bearing in installation of this character, and need to be adapted according to special requirements.

Matters Important to Service

The cafeteria or self-service plan would appear to be best adapted to the requirements of most industries. The buildings should be convenient to the workers, not too far distant from the work places. The kitchen should occupy a central position. The location of all buildings should be such as to secure good lighting and ventilation. Railings or barriers should be placed in front of self-service counters, so that the men can be kept

ter possibilities of ventilation than the vertical opening.

Experience teaches that it is good economy to purchase high grade equipment to insure that it will stand rough usage from mechanical washing and stacking. Equipment manufacturers and distributors will usually be able to submit estimates if they are furnished with particulars as to the numbers to be catered to. The kitchen of an exceptionally well equipped industrial canteen for 280 persons at Leeds, Eng., contains the following utensils: One large gas stove with three ovens; one steam-heated hot closet and carving table for heating plates and dishes and keeping the food hot; one steamer with four compartments for steaming and boiling; one thirty gallon

steam-jacketed pan for soups; one ten gallon copper water-jacketed pan for milk, stewed fruit, porridge, etc.; a knife machine; a potato peeler; a bread cutter; a steam kettle; a whisking machine for batter; a mincing machine; large bins for storage; enamel bowls, jugs, and stew jars; substantial tinned steel bowls for baking, and ordinary kitchen and dining room crockery of white stone ware. This canteen has a staff of matron, cook, and four assistants.

In one of the large American shipyards the following equipment was designed for use in nine separate mess halls, in each of which an average of 1,000 men were fed per day: One refrigerator; one nine-foot steam table; two coffee urns; two hot water urns; three hundred trays; five hundred dinner plates; six hundred each of soup bowls, pie plates, knives, forks, and tea spoons; and one modern steam dish washing and drying apparatus.

Fig. 5. Where food is prepared for shipbuilders in the yards of the Submarine Boat Corporation, Newark, N. J

Problems of Management

The final success of restaurant facilities becomes largely one of management and depends to a great extent upon the person directly responsible for the buying, preparing, and dispensing of the food; upon the maintenance of adequate service; and upon carrying out a high standard of cleanliness, sanitation, hygiene, and general attractiveness of the whole layout.

The success of the works restaurant depends upon whether or not certain essential requirements are met. They may be briefly summed up.

Convenient Location.—The restaurant must be convenient to the workmen.

Attractiveness.—It must be attractive, light, airy, well spaced, and with plain but neat, clean, and attractive equipment.

Prompt Service.—Service must be prompt. Slow service is certain to make the works restaurant a failure.

Hours.—The restaurant should be open at all hours when there are night shifts. Coffee, tea, cocoa, and milk should be obtainable at any time.

Food.—The food served should be of first class quality; fresh, properly prepared and cooked, appetizing, and of good variety.

Prices.—The price of the food to the workmen should be so low as merely to cover cost, or at most to provide only a small margin above cost. The price of any given meal or articles of food should be prominently displayed. This is essential for prompt and satisfactory service.

Payment for Food.—The method of payment for meals should be simple, preferably by ticket or check with the meal and payment of cash to cashier on exit. Tickets purchased in advance save the workmen from carrying much change in work clothes.

Management.—First and last the success or failure of the works restaurant is dependent upon the manager.

THE RELATION OF THE MEDICAL DEPARTMENT TO THE COMPANY

By HENRY WIREMAN COOK, M.D., Vice-President and Medical Director, Northwestern National Life Insurance Company, Minneapolis, Minn.*

THOUGH the composite nature of the life insurance business, with its financial side, its legal, mathematical, medical, and sales sides, is what gives to life insurance the charm and ever present novelty and interest, nevertheless, this also has the tendency, especially as a company grows larger, to develop specialists, each in his own line, who, crowded by the daily routine, do not rub closely enough with one another, and who too often tend to over-emphasize their particular angle without a comprehensive conception or appreciation of the business as a whole.

Profiting, not by sickness as does the medical profession, but by health and longevity, life insurance companies can sell the principles of health to the public with greater advantage than can any other business or profession.

It follows that the medical and actuarial departments of the life insurance company should be in sympathetic touch and understanding with all organized health activities.

The function of the medical department is paramount. The view of the clinician, tempered by a knowledge of insurance statistics, may rightly be counted as the basis of sound health education.

This tendency has led to the custom in the American Life Convention meetings of having representatives from specialists outside the section present their points of view, resulting in some very valuable discussions and a better mutual understanding. This interchange of viewpoints has naturally been most highly developed between the medical and actuarial sections, leading, in the case of the Actuarial Society and the Medical Directors' Association, to a joint meeting of the two sections. The principle of more closely correlating the different specialists in our business should be a daily or weekly ceremony of every home office, the frequency to depend somewhat on the size of the company, but to be held as often as consistent with the number of subjects pending for discussion, and with the exigencies and convenience of the daily routine.

The benefit to the company from the custom of having official conferences is beyond the individual or aggregate decisions arrived at; it is represented in large part by the resulting development of the official force themselves. The officers of a life insurance company are of widely different mental trend and temperament and have been influenced by divergent training and experience.

A man from any specialized training such as law or medicine could hardly find a better environment in which to broaden and develop than in the association of a life insurance official family, provided he is given the opportunity to supplement his own equipment and experience by that of his associates, and does not confine his attention and interest too narrowly to the routine of his own department.

Medical Office a Whole-Time Function

Too frequently in the past the association of the medically trained officer has been merely a few hours taken incidentally from his practice, during which time he gave a superficial opinion upon the risk, based entirely on a clinical medical experience, unmodified and uncorrected by insurance statistics, or by business experience. Under such conditions it is impossible for him not only to give the correct ruling from the technical point of view, but to control the selection, the use, and the organization of the medical examiners, or to gain that intimate relation with the other departments, especially with the agency organizations, which is so invaluable in determining a unified and enthusiastic *esprit de corps*.

The history of the development of the business of life insurance shows that the technical and professional elements were first merely associated in a consultant or advisory capacity,—the legal, mathematical, and medical,—but soon came to occupy a recognized and integral part. This development is often repeated in the individual company. Starting with merely a skeleton organization, in most part agency and accounting, the professional and technical elements are soon found so vital and so intimately concerned with each step of progress that they are made definite whole-time departments, from which time they

* Read before Legal Section, American Life Insurance Convention, Omaha, Neb., September 22, 1919.

should assume their normal place in guiding the development of the company. Just as a legal element is involved in almost every transaction of a life insurance company, and a well trained legal opinion is of constant application, so a medical department should offer a far wider service to the company than merely providing a personal medical opinion of the risks presented for selection.

It is out of place here to discuss the strictly technical medical and actuarial problems involved in medical selection, as much so as a detailed argument relative to the admissibility of certain evidence would be before the medical or actuarial sections. We must assume that on strictly technical questions each department of a company is qualified to give correct rulings, though such rulings are the more valuable as they are modified by a broadened practical experience. But it is in questions concerning the relation of the departments to each other and the company as a whole that we are mutually interested and, therefore, with a full appreciation of the essential part that legal opinion, statistical evidence, salesmanship, and business expediency play in the conduct, both of the medical department and the company as a whole, we venture a brief discussion of some possible and profitable functions of the medical department besides its primary one of technical medical decisions. In many companies there is knowledge and talent in the medical department that is not given opportunity for full expression and development, and which could be used both to the benefit of the company and of the department.

Relation to Employees

The initial selection of an employee should be largely a medical problem, and this medical element is to-day of increasing moment with the social tendency to place upon the employer, more and more, a permanent responsibility for the employee. The importance of a physical examination as a condition of employment is so well recognized to-day that argument in its behalf should not be necessary, especially in a meeting of life insurance men. Yet it is safe to assume that many companies in the Convention are still accepting employees without the approval of the medical department. Such a custom is increasingly dangerous, as now, when many firms are excluding sick and impaired applicants from employment, a firm which does not use such precaution is very apt to have applications from a larger and larger proportion of the physically and mentally impaired. That a lay inspection, however skilled and experienced, can determine an applicant's health and capacity for effective work is not possible. In the first place, a firm owes it to its other employees not to expose them unnecessarily to contagion. Cases with active tuberculosis often appear healthy to superficial observation, as also cases with syphilis. Employees with extensive pyorrhea are very objectionable as nearby working associates, and those with diseased tonsils and those subject to repeated colds or tonsillitis are sources of repeated infection which often runs through the entire office force.

In addition to contagion, which is the lesser problem, there is the question of physical and mental capacity. An employee with exophthalmic goiter, with neurasthenia or hysteria, or with such conditions as nephritis, diabetes, or high blood pressure, cannot ordinarily give adequate value. Controlled, alert, efficient mental processes are not ordinarily associated with these and many other diseases which might be mentioned. Furthermore, many of these cases are very subject to periods of indisposition, necessitating annoying and costly absences. Many such subnormal employees, especially women, require or think they require extended vacations and such adjustments are costly and difficult. No employee, and this holds just as true for an officer, should be accepted without satisfactory evidence of good health and approval by the medical department.

All business houses are considering some form of social service work among their employees. This generally is largely of a medical nature. A life insurance company is well equipped to give sound medical advice to its employees and to give attention to minor ailments. This can be extended as far as seems desirable in the direction of visiting nurses, additions to diet during convalescence, and so on. The medical department should also be in a position to give advice as to office hours, lighting, ventilation, or heating. A healthy office force goes a long way towards guaranteeing a contented, effective, and economical force. Periodic examination of employees should be offered as a valuable service, and might better be made compulsory.

Relations to Other Departments

The very large majority of American Life companies are now well organized, and the officers are concerned whole-heartedly in giving the best service of which they are capable. They are appreciative of the respective parts that each play in the success of the company, and are steadily approaching a unified attitude towards the company's problems.

It is this "company attitude" which determines the standing and reputation of the company with

the public, the insurance fraternity, and its own agency force. When the insistence on new business and rapid growth is excessive, the company becomes known as addicted to "high pressure" methods; technical and professional opinion is apt to be over-ridden by ill advised executive action, and the reputation and financial standing suffer. In other cases, ultra-conservative and over-technical decisions may prevail; action is hampered by excessive caution; delays and indecision retard progress and dampen enthusiasm.

Either extreme is equally prejudicial. The executive attitude must include a recognition of the scientific basis of the business, and the necessity for observing the restrictions which a reasonable application of scientific knowledge dictates, and to that end the medical director and the actuary must be loyally upheld in their decisions. On the other hand, the medical director and the actuary both must recognize that a life insurance company is not an endowed scientific research laboratory. It is a money-making proposition primarily, either for stockholders or for policy holders, and must conform to reasonable business standards. Fine technical decisions, for which it must be admitted we often have no very constant or definite basis, must not be expected to replace a broad business policy.

Between the medical and the actuarial departments particularly, there must be constant and cordial exchange of ideas and information. The clinician and the mathematician regard a risk from different viewpoints, the medical man tending to emphasize the individual characteristics, the statistician insisting upon a ruling based on a more or less arbitrary classification of the risk according to one or more specific features or impairments. These two viewpoints must be correlated in each correct decision. As each professional man becomes also an insurance official, the one a medical director, the other an actuary, they find no difficulty in reaching a compromise and a mutually intelligible position.

Relation to Policyholders and the Public

Here the medical department can do as much or more than any other department in determining a favorable attitude towards the company. Public opinion, after half a century, is beginning to realize the truth expressed in Gladstone's aphorism, "In the health of the people lies the strength of the nation." Individual and public health are obtaining interest and attention. A life insurance company should stand as a practical and potent exponent of the methods of preserving health and prolonging life. This is not only "good business," but it is a social obligation incurred through the exceptional opportunities in this direction offered to life insurance companies. The organization contains within itself medical and statistical knowledge bearing upon disease and its prevention, and has exceptional opportunities for publicity on such subjects through the agency force and the policy holders.

Profiting, not by sickness as does the medical profession, but by health and longevity, with the additional weight which successful business enterprise always carries, life insurance companies can advocate the principles of health hygiene to the public from a more advantageous standpoint than can any other business or profession.

Therefore the medical and the actuarial departments should be in sympathetic and understanding touch with all public health movements. The company should hold membership in the national public health associations, and cooperate with other organized efforts in this direction. The company and its officials can well afford the time to take leading parts in health movements in their own community.

The agency and policyholders' magazines and circulars should contain advice from the medical department on questions of personal and public health. Life insurance agents necessarily obtain a smattering of medical knowledge. It is the company's responsibility, through the medical department, to see that they can discuss intelligently and give sound advice on general health problems.

During the course of his work a life insurance agent gains an astounding amount of information about the ailments and indiscretions of his friends and neighbors. He should be in a position to use this knowledge wisely. An experienced, keen agent becomes something of a snap-shot diagnostician. He appreciates and can use advantageously correct medical information. He should know the general principles, for example, of antituberculosis work, of cancer control, the significance of high blood pressure, of albumin, of casts, of goiter, of unprotected hernia, or of chronic indigestion.

Whereas medical advice from a physician is oftentimes received with skepticism, it is astonishing how frequently it will obtain attention if offered by a business man or fellow layman. A convincing talker, the life insurance agent can be a very considerable factor in moulding opinion within his circle of influence, and the medical department should give him the facts necessary for effective propaganda.

Here one's ability, firmness, tact, and resourcefulness are tried perhaps as in no other human

relationship, and this is but natural when we consider the apparent conflict of interest, and the seriousness of the issues involved.

From the office point of view, the efficacy of the effort at a wise medical selection determines largely the profit to stockholders or, in a participating company, the dividend to policy holders, and, in fact, determines the ultimate solvency and persistency of the company.

From the agent's point of view, in the rejected case, which is the one he remembers, medical selection has deprived him and his family of a large portion of their month's income for which he feels he has worked and planned faithfully. Let us make no mistake about it; it is hard work and a notable accomplishment to get that name on the dotted line.

As has been stated, the difference in viewpoint simulates an apparent conflict of interest. Of course, the conflict is only apparent. The actual interest of each agent is identical with the interest of each official, and is in both cases success for the company, in its largest and truest sense.

It is noted by those on the inside that the very agent who at the moment of disappointment whole-heartedly curses medical selection and everything connected with it, is the very man who uses as his strongest argument the company's low net cost, and waxes eloquent over the low mortality and careful selection. He knows perfectly well that he would not sell questionable protection to his friends and customers in a company which accepted drunkards, or underwrote heart and kidney cases at standard rates; but it is hard to be logical when you are going through the painful process of separation from a hundred dollar check. It is a wonder that agents are as uniformly loyal and decent about it as they are.

The medical department must recognize the vital part played by the agency force in the company's growth and success. The individual agent must be treated as a reasonable business associate, his evidence for reconsideration of decision carefully reviewed, and, above all, he must be made to realize that a case is declined only as a last resource, with a full appreciation on the part of the medical department that only the accepted cases are profitable to the company, and that every rejected case means a financial loss. The object of medical selection should not be the lowest possible mortality experience; it should be rather to accept the largest proportion of risks submitted and at the same time obtain a favorable mortality percentage. With this object the method becomes not to reject every case about which there is the slightest question, but by educating the agency force and by the organization of a corps of loyal, efficient examiners, to eliminate the wastage and disappointment of a large percentage of rejected cases and accept the maximum proportion of applicants who, selected on the basis of the most reliable scientific and statistical data available, will produce a reasonable and favorable mortality experience.

In order to be successful, the medical department must reach and influence the agency force in as direct a way as possible. The agency bulletin has no more important function, and yet one often neglected, than to advise the agent in helpful cooperating with the company's medical selection. A well instructed and wise agent will eliminate a large proportion of undesirable risks during the initial stages of the interview. The book of instructions should be as specific and detailed as practicable, covering all of the more common impairments. Agency meetings and visits to the field are means of bringing about a thorough understanding, appreciation, and cooperation between these departments, and should be consistently utilized by the medical department.

To Determine a Favorable Mortality

In determining a favorable mortality for the company the medical examiner has been mentioned as having a fundamental relationship to the success of the company, the importance of which relationship is frequently overlooked or neglected. In closing, therefore, a word should be added on this relationship because it is so closely allied to one fundamental legal principle, the safeguarding of expert opinion and testimony from improper and partial influence. The legal department of the company, as no other, will realize that a witness or an expert is valueless if he is prejudiced or subject to pressure which would alter or determine his attitude on the case. For example, what lawyer would be willing to employ an old friend and family physician of the accused in testimony for the prosecution? In determining the fraudulency of a horse sale, who would employ a veterinary selected by or in business relations with the man accused of the fraudulent sale?

Many life insurance companies are exceedingly lax in applying these principles to the employment of medical opinion. When three or four physicians are appointed on equal basis in a town and the agent and the applicant are privileged to employ any one of them, it should be obvious to anyone, as it is to a legally trained mind, that that physician will ultimately get all the examinations who passes the most cases, and that the physician who takes time and interest to discover existing impairments will soon have no appli-

cants from that company upon whom to exercise his skill. In other words, by giving the agent and the applicant the choice of examiners, you are putting a premium on dishonest or careless work. It cannot be too strongly emphasized that under such a system it is impossible to develop a loyal, interested corps of the best physicians available. A physician must be appointed in each town who is the first choice of the company for all examinations in that district when he is available. He then represents the company in rendering his testimony. If he is selected by the agent or the applicant, he will inevitably come to represent them versus the company.

Where Responsibility Attaches

It should be made plain that in this it is not implied that the agent is dishonest. The rules for selection are the responsibility of the company, not of the agent. He would be quixotic beyond normal expectation if he selected the physician who detained his applicant half an hour instead of ten minutes, who reported "unimportant details," or who was too inclined to discover albumin or heart murmur. If the company is satisfied to accept prejudiced testimony, can he be expected to insist on a technicality which will cost him a commission? This is a question which goes to the very roots of the success of the company. It is absolutely essential that the medical examiner should be loyally maintained, irrespective of the agent's or the applicant's preference, provided he is competent and reliable. A company which changes examiners on the agent's or the applicant's request or whim, except on sufficient and proved grounds of undesirability, cannot expect loyal service from the physicians in its employ, and it will not obtain such service.

In this ruling as in so many others, the legal department will be in a position to lend its trained advice and effective support. A loyal and unwavering adherence to the chief examiner throughout a period of good service will do more than any other one thing to render the examination blank trustworthy and to assure impartial evidence of insurability. As this evidence is the basis of the insurance contract, it must be kept divorced from prejudiced, harmful influence.

COMPENDIUM OF NECESSARY CONSTANTS

The National Research Council in America, supported by private funds, will have for its special task or purpose that of ascertaining exactly what scientific knowledge and resources are possessed by the Nation, and what are the means for increasing this knowledge. It purposes to compile and issue, with the cooperation of the American Chemical Society and the American Physical Society, a critical American Compendium of chemical and physical constants which shall be up-to-date and correct. The university and research laboratories of the country will be asked to aid in supplying the needed facts, and business and industrial concerns whose work is based on applied chemistry and physics will be asked to supply a list of all the constants required in their work. The investigations of the Council will attempt to determine such constants and include them in the compendium.

AN ERA OF PREVENTIVE MEDICINE

By Our London Correspondent

All signs go to show that in civilized countries an era of preventive medicine is coming in. In Great Britain, at any rate, the signs seem fairly evident. The creation of a Ministry of Health points in this direction, as the work of this governmental department will be chiefly concerned with the prevention of disease and its aim will be or should be to forward by every means in its power the promotion of good health among the general population. Allowing for the great importance of curative measures, it still stands as an undeniable fact that the paramount object in the fight against disease is prevention; to prevent the occurrence of communicable disease, and to prevent and restrict its spread; moreover, by providing hygenic and sanitary conditions in homes, schools, factories, and workshops to create and build up a healthy race. It is obvious that in this endeavor industrial hygiene and sanitation are factors of the first importance. A large proportion of the inhabitants of all countries and perhaps of Great Britain, in particular, is engaged in industrial work. If then a large and essential part of the population, the backbone, so to speak, is not healthy, the virus will spread, and the entire nation will deteriorate. However, there is no need to elaborate this point, as it is clearly apparent to every thoughtful person. The main intention of this letter is to sketch the situation as regards industrial hygiene and sanitation in Great Britain.

It has been an outstanding characteristic of the English speaking stock that its members have depended more upon individual than upon concerted effort. This inborn trait, and the consequent tendency to under-organization of the British nation, were manifested plainly during the war. But this defect is less obtrusive in the Public Health Service than in any other direction. The sewerage, drainage, and water systems are surpassed by no nation. The State has built up a vast but not coordinated organization for the purpose of checking communicable diseases, and has been eminently successful in so doing.

The Public Health Service exercises a strict and expert supervision over the future British subject from the time of birth to death. The individual is personally looked after and, if necessary, medically cared for when young. The school and factory and workshop are inspected according to the provisions in laws which have been carefully drawn up. If employed in an unhealthy trade the dangers to health are reduced to a minimum. If an accident is met with or sickness occurs, aid is given to provide professional attendance and medicine, and it is only when death comes and the mortal remains are buried or cremated in accordance with certain regulations that the interest of the State in the citizen ceases. The Public Health Service does considerably more than this for the Nation, and, in fact, the State has surrounded the population with sanitary safeguards of every description. It is superfluous to say that the effect of these far reaching activities has been entirely to rid the country of some deadly epidemic diseases and greatly to curtail the scope

of others. While the efforts of this loosely linked Public Health Service have been marked by the expenditure of much zeal and energy, and, in the main, have been highly successful, it is felt that if more coordination existed between the various bodies which exercise authority with regard to public health matters, the results would be even more striking.

It would seem that the welding together or centralizing of these bodies should come within the province of the Ministry of Health. Sir George Newman, the chief medical officer of the Ministry, in his memorandum entitled "An Outline of the Practice of Preventive Medicine" addressed to the Minister of Health and published recently, turns the searchlight of his views into every nook and cranny where the least suspicion exists that preventive medicine can be rendered operative in promoting the public health. Naturally, such a microscopic survey includes industrial hygiene; but in present circumstances the Ministry of Health cannot be expected to carry its avowed policies into effect. Some time must elapse before this is possible. The housing problem is the most insistent and the one with which Dr. Addison, the Minister of Health has pledged himself to grapple forthwith. It remains only to be said that the Ministry of Health seems to provide the logical means whereby the numerous bodies which now regulate the public health machinery of this country may be coordinated and centralized, if general and authoritative opinion decide that such a course is judicious and desirable.

I shall now proceed to present things as they are and describe briefly the manner in which public health matters are arranged in Great Britain.

Complexity of Public Health Administration

The Public Health Services of Great Britain are administered centrally by twelve, or thereabouts, independent and uncoordinated departments, boards and councils, and, locally, by nearly as many local authorities. The one of this number which is concerned with industrial hygiene and sanitation is the Home Office. This Office supervises sanitary conditions in factories, controls dangerous trades, and appoints medical referees and certifying factory surgeons under the Workmen's Compensation Acts. Generally speaking, factories may be defined as places in which mechanical power is used. As remarked, factories are inspected by Home Office inspectors. Workshops may be defined as places in which mechanical power is not used and, so far as sanitation is concerned, are supervised by officers of the local sanitary authorities. There are, however, a large number of non-textile factories which are controlled by the Home Secretary, whether mechanical power is employed in them or not. It can be stated that the multiplication of bodies whose duty it is to deal with public health affairs is a result of the piecemeal way in which these affairs have been arranged in Great Britain. Except for the general sanitary services, the needs of the country as a whole have never been provided for, but only for isolated groups.

Every factory must be kept clean and well ventilated and must not be over-crowded. A factory or workshop is considered over-crowded if there are less than 250 cubic feet of space per head, and less than 400 cubic feet if over-time is being worked. Every adequate measure must be taken for securing and maintaining a reasonable temperature in each room in which any person is employed, but the measures so taken must not interfere with the purity of the air of the room. Very stringent regulations are in force as to the provision of sanitary conveniences. Every local authority is required to keep a register of the workshops within its districts, and the factory inspector is required to forward to a local authority any notice received by him of the commencement of any workshop within the district of such authority. The menace of dangerous and unhealthy trades is minimized by every device that human ingenuity supplemented by medical knowledge can suggest. The Secretary of State, who is the head of the Home Office, has the power to make regulations in respect to any dangerous or unhealthy trade, such regulations requiring the adoption of special precautionary measures as regards cleanliness, ventilation, or extraction of dust. The law as regards retail bakehouses is administered by sanitary authorities and is very strict. Laundries in which steam or water or other mechanical power is used are classed as factories. All other laundries are workshops. These regulations are enforced without fear or favor and, in spite of the divided authority industrial hygiene and sanitation, are at a fairly high standard in Great Britain.

It cannot be disputed that many improvements are needed, and especially in the construction and situation of factories and workshops. Unlike America, England has been and still is to some extent conservative. Most of the factories are located in the heart of busy industrial centers in a smoke laden atmosphere. Many of the buildings are old and difficult to maintain in a satisfactory hygienic and sanitary condition. Being frequently, perhaps more often than not, surrounded by other buildings, adequate ventilation is not easy to secure; while in a moist, dirt-laden atmosphere pure air is practically unattainable. British factory laws are excellent and well enforced, but physical reasons tend greatly to restrict their hygienic value. One remedy, although a drastic one, is to scrap many of the existing factories and erect new ones outside the cities. This movement resolves itself into a question of transport and transit which is another hard problem to solve nowadays. American factories and also Canadian factories, as a rule, are superior in construction, in labor saving devices, in sanitary equipment, and in situation to those of Great Britain. The factories of many of the Lake cities of Toronto, for instance, are for the most part located outside the town, and are beautiful picturesque buildings, which do not bear even a remote resemblance to the dingy, squalid, barrack-like looking buildings which pass for factories in the "Black Country" of England, for example.

Report of Chief Inspector of Factories

I have before me at the present time this annual report, and it provides instructive and even fascinating reading. It is of engrossing interest, and, unlike most dry as dust reports, it is a human document. It shows how the war quickened concern in the welfare of the industrial worker. New orders have been brought into vogue, and the old ones have been broadened and are more strictly enforced than ever before. The shortening of the hours of work, the researches on fatigue by eminent scientific men, the question of suitable food, have been so dwelt upon in the American medical press during the past two or three years that a recapitulation would be a mere weariness of the flesh. Suffice it to say that this far sighted and beneficient policy has borne the best fruits and that shorter hours of work have been shown to be better for employer and employee. Under the Act of 1916 orders have been made applicable to certain industries, and others are under consideration calling for arrangements for preparing or heating or taking meals; the supply of drinking water;

accommodations for clothing; the supply of protective clothing; facilities for washing, and for sitting in workrooms; ambulance and first aid arrangements. These orders are being supplemented and explained by pamphlets giving detailed advice.

It is not alone, nor even chiefly due to the enforcement of orders and compulsory requirements that steady progress is made. There must be sympathy, good feeling, and hearty cooperation between employers and employed if the best results are to be attained. Joint Industrial Councils have been established and steps have been taken by a Factories and Workshops' Inspection Department to get into touch with each Council at one of its early meetings to bring before it those matters with which the Department is concerned; that is, the health, safety, and welfare of the workers, and to urge its cooperation, not only in carrying out statutory requirements but in considering and bringing about future improvements.

Introduction of Labor Saving Devices

One of the most striking differences between the equipment of an American and a British factory is the great preponderance of labor saving devices in the former. In fact, it was only by the employment of such devices that American industries were able to hold their own in the markets of the world in competition with the cheap labor of Europe. The war has changed all this, and now British is nearly as costly as American labor. Therefore, if labor saving devices are not introduced into British factories, their chances of equalling the output of American factories in quality or quantity will be small indeed. Although the economic side of the question is not directly a phase of industrial hygiene, it is closely interwoven with that of hygiene. Both employer and worker now recognize that the introduction of labor saving devices increases output, reduces the cost of production and the risk of accidents, and tends to better health. This point of view has been emphasized by the advent of women into industries where their limited physical powers rendered them at a disadvantage as compared to men. Thus an extensive introduction of labor saving devices has been taking place in the factories of Great Britain, and a still more wide introduction may be anticipated in the future.

Welfare in Factories and Workshops

One of the most valuable chapters of the Report is that contributed by Miss A. M. Anderson, principal lady inspector of factories. Miss Anderson deals chiefly with the subject of personal hygiene, a matter which up to a recent date has been overlooked and overshadowed by the more obviously ambitious schemes for promoting public health. At the present time with the new conceptions as to the manner in which many infections are communicated, *viz.*, by transmission from individual to individual, it has dawned upon the advocates of preventive medicine, that personal hygiene is perhaps the most important factor of all in warding off disease and checking its spread. Cleanliness is next to godliness, and the conditions produced by the war in factories brought this vital truth home as it had never been brought home before.

Up to the time of the war a certain amount of dirt in some factories was looked upon as inseparable from the work in which the employees were engaged. If it was dirty trade, kismet, it had to be a dirty trade, and no efforts were made to provide facilities for washing. The war has altered these conditions for the better and an inspector states in the report that the extension of ample facilities for washing, from clean trades to the more dirty, is beginning to appear. The factory must be kept as clean as possible; but the question of personal hygiene is of even greater importance and bulks larger in the maintenance of industrial hygiene than any other one phase.

This letter has outlined in a somewhat discursive manner a few salient features of industrial hygiene and sanitation. The subject is a big one and it is not so much a question of finding material to discuss as of selecting that of the greatest value and interest to American readers.

In future letters various matters related to industrial hygiene and medicine will be discussed and handled more in detail. The point that it is especially desired to lay stress on is that it is to the advantage of all concerned that industrial hygiene should be brought to as high a pitch of perfection as is possible. It is better for the general public, the employer, and the employed. If the worker is not contented and healthy, his output fails in quality and quantity, and the entire nation suffers in pocket and in health. It is false economy to be unduly thrifty at the expense of the worker.

INDUSTRIAL MEDICINE AND SURGERY*

Dr. Mock's book marks the triumph of the industrial physician. Its contents suffice to prove that no other branch of the practice of medicine calls for such comprehensive, such profound, or such mobilized knowledge of the medical arts. It requires the highest ideal of general practice, plus preventive medicine, plus administrative ability. In the extensive bibliography at the end of this book, we do not find the name of any work covering the same ground.

There was a time, not so long ago, when physicians in this new specialty had to suffer from the dubious reputation of their predecessors, the "company doctors," a type of practitioner by no means extinct and, unfortunately, not a few of the industrial concerns who have gone to great pains to provide adequate installations for their medical services, have stultified their medical service by confiding the work to their former "company doctors" or, impelled by the habit of accepting the lowest tender, to cheap and untrained physicians. The consequence might have been foreseen; such concerns are "not at all enthusiastic over the results of industrial medicine and surgery."

Thus, while industrial medicine and surgery have "arrived," there still remains to be done a great deal of spade work. There are many industrial establishments in which these methods are yet unknown or inadequately applied. There are others where a totally erroneous conception of the scope and function of the medical services has prevailed.

Dr. Mock's book is, therefore, in some sense a pioneer work. Not only has he to propound to the convinced industrial physician a sound doctrine of practice, but he must instruct the neophyte in fundamental principles, and also provide the propagandist with arguments wherewith to "sell" the heads of industry on the idea.

While the necessity for these varied functions makes the work more interesting to the non-specialist, it renders it probable that subsequent editors will separate the propaganda from the systematic part; or, which is even more probable, "Mock" will become the classic on industrial

* Industrial Medicine and Surgery. By Harry E. Mock, B.S., M.D., F.A.C.S.; assistant professor of industrial medicine at Rush Medical College; chief surgeon to Sears, Roebuck Company; Lieutenant Colonel, M.C., United States Army. Cloth, 8vo, pp. 846, illustrated, $10. W. B. Saunders Company, Philadelphia, 1919.

medicine and surgery, an eminence amply justified by the author's personal efforts in that field and the merits of the book itself.

So far as the general part of the work is concerned, its doctrine may be summed up in the proposition that the medical department of an industrial concern should properly be the "Human Maintenance Service."

The book is divided into six parts: (1) Industrial Health Service; (2) Prevention; (3) Industrial Medicine; (4) Industrial Surgery; (5) Compensation Insurance, medico-legal phases; and (6) Reconstruction.

The plan which has determined the distribution of the subject matter among these divisions is not always clear. This is especially the case in the first two, in which there is considerable overlapping and repetition. In reading the book one receives a recurrent impression of a series of detached articles, independently written, with much common subject matter, and subsequently brought into outward unity to make a book. This may be the true genesis of the work. On the other hand, the repetition and overlapping may have been intentional, and designed to give as much completeness as possible to each section.

Under the heading of industrial health service are treated the personnel and the equipment of the medical department and the scope of its activities. The construction of the office and dispensary is discussed with sufficient detail. On the question of whole-time or part-time physicians Dr. Mock is clearly in favor of the latter, though in some passages he appears to make it merely a question of the ability of a concern to provide an adequate salary for a whole-time man of the required caliber. A book such as that now under review is a work of years, and it may be that the uncertain sound of such passages is a reflex of the author's varying state of mind. At present he has settled to the following position: "While many expert company surgeons devote all of their time to the industries employing them, yet, as a rule, better trained and more able physicians can be secured if employers require them to give only part of their time to this work." (p. 43.)

Dr. Mock points out as an advantage of the part-time system the employment of two or of several men who, being well grounded in the general work, can relieve each other for such purposes and yet may, as specialists in different branches, each use his special knowledge as occasion may arise. Of such an arrangement he says: "The remainder of the day they have free to themselves to develop their special line of work and, incidentally, they are becoming more valuable to the concern because of this development. The salaries paid these men are good, but the concern could not employ them for full time without an outlay that would make it prohibitive. But . . . their combined salaries do not exceed what the concern would pay for one mediocre physician giving his full time to the work."

On the nurse in industry a special chapter is contributed by Miss Mae Middleton. More than two-thirds of her report is taken up with illustrative cases, largely of an anecdotal type. The collation of the meager information it affords with that found in other parts of the book brings home forcibly the fact that the nurse is the pivot of the system.

Dr. Mock is for the most extended application of human maintenance and, therefore, is an advocate of what is ordinarily called social welfare work being done in the families of employees at the cost of the employer, and this not merely on humanitarian, but also on economic, not to say selfish, grounds.

On the same principle, our author is strongly in favor of placing the medical services and the mechanical safety services under one head, so that their activities may be only coördinated.

The cost of good human maintenance service, exclusive of home treatment and the medical care of employees' families, appears to be about $2.25 *per caput, per annum.*

Four concerns which give, in addition, sickness treatment to employees and their families in their homes, pay $6.46 (chemical works), $3.89 (textile), $14.24 (gold mining), and $11.82 (coal and iron mining), for the complete service.

Even these seemingly high annual charges represent increases of the daily wage by a fraction more than one cent in the lowest and about four cents in the highest case. In these days such figures are negligible.

The question of physical examination of applicant for employment is notoriously a ticklish one. In connection with it the interests of industrial hygiene and medicine are likely to clash with the prejudices of organized labor. The present work deals very fully and very fairly with this question, although the information relating to the subject is somewhat scattered. Dr. Mock believes that experience of the benefits and tactful explanations will remove obstacles due to suspicion that the examination is intended as a cloak to hide the machinations of the opponents of organized labor.

The percentage of absolute rejections is small. The most important functions of the examination are the fitting of men to jobs, the prevention of accidents due to partial incapacity, and the opening of a medical record for the employee.

A chapter on women in industry draws largely on war experience and deals helpfully and in detail with such matters as the technic of routine physical examination and the provision of facilities for resting.

The problem of the tuberculous employee is treated from the hygienic, statistical, sanitary, and rehabilitation points of view.

It is evident that the medical treatment of employees is far less special than is the surgical work. Consequently, comparatively little space is devoted to it. While the highest grade of surgical skill and knowledge are presumed in the industrial surgeon, the excellent and highly practical chapters in industrial surgery will be of inestimable value to him. They are packed as full of practical information as an egg is of meat.

A commendable feature is the "plumping" for what has proved, in the author's own experience, the best method in each case. The attitude that Dr. Mock seems to take is this: "While such-and-such a method is recommended by So-and-So, and this other by Such-an-One, and while no doubt each has merits and special advantages in particular cases, I have found the method here described gives full satisfaction in the general case." One cannot better 100 per cent.

In this way, for instance, Dr. Mock comes out strong for the immediate and free use of tincture of iodin. He points out that one of the most fruitful causes of sickness, of loss of time, and often of compensable injury, is the neglect of slight traumata, resulting in serious infection. He considers that emphasis on the need for immediate treatment of the slightest trauma by tincture of iodin and suitable protection, is one of the most important points of industrial surgery.

Orthopedics, especially reëducation, receives full attention. There is a special detached chapter on human conservation and reclamation of the disabled.

The closing sections are concerned with employees' compensation from the medical viewpoint, and similar subjects, with a strong argument in favor of health insurance and for the Americanization of the foreign employee.

Dr. Mock has produced a work of which American medicine has just reason to be proud. It is not merely a monument of hygienic, social, and medical progress; it is also an invaluable and what will become an indispensable handbook to those engaged in industrial medicine and surgery.

SAFETY COUNCIL COMMITTEE STUDIES DERMATOSES

Skin diseases or dermatoses are prevalent among workers in certain industries, and in some cases are caused by or aggravated by the conditions to which the worker is exposed, but there is very little accurate information as to their cause and methods of prevention. This led the Health Service Section of the National Safety Council, at the recent Congress, to form a special committee to investigate and report on this subject. This Committee consists of three men of the highest standing in the medical and industrial world—Dr. Carey P. McCord, director, department industrial medicine and public health, University of Cincinnati; Dr. C. A. Lauer, medical director, Westinghouse Electric & Manufacturing Co.; Dr. C. F. N. Schram, medical director, Fairbanks, Morse & Co.

In the questionnaire sent out to the members of the National Safety Council, the Committee offers to serve as a clearing house for the collection and dissemination of data on the best modes of preventing and controlling skin diseases, and the best methods of treatment.

The list, confessedly incomplete, it is hoped will be rounded out from the data obtained through the following questionnaire:

1. Do you wish the information supplied below regarded as confidential?
2. Name and address of the plant
3. Name and title of the person supplying this information
4. Number of employees Male Female
5. General nature of the product of the plant
6. What particular processes are involved in the manufacturing of the products of your plant?
7. Do you know of the existence at the present time, or at any time in the past, of any kind of skin disease among the workers in any part of the plant?
8. Please supply all possible information as to the nature and characteristics of the skin disease observed
9. Have you on hand, or can you obtain, "close-up" photographs of these skin diseases? (Please include photograph when returning this questionnaire.)
10. In what particular manufacturing process did such conditions arise? Please supply full details.
11. What percentage of persons in any involved department were affected? Total number affected.
12. What has been the method of caring for and treating such patients?
13. What measures have been installed for the elimination of these conditions?
14. Are the protective measures instituted adequate?
15. In other plants in which you may have connections, or with which you may be familiar, do you know of the occurrence of any skin disease attributable to working conditions or to trade processes? If so, please supply all possible information.
16. What general and specific processes do you believe this Committee should investigate as probable prolific sources of dermatoses? This question does not apply to your own plant, but to industry in general.
17. Please refer us to any papers you may have published on industrial skin diseases or to any other published work of this nature with which you may be acquainted.
18. Please write your own views with reference to industrial dermatoses,—prevalence, frequency, causes, methods of treatment, and their significance as an industrial medical problem.

Information is asked concerning the following list of industries and trade processes in which cases of industrial skin diseases are known to have developed.

Industry	*Trade Processes*
Anilin dyes	
Automobiles and parts	Machine shopping (oil)
Bakelite	
Boots and shoes	Closing and blackening
Boxes, fancy and paper	Paper box making (glue)
Brass and bronze products	Acid dipping
Clothing and textiles	Cleaning, dyeing
Cordage, twine, jute	Combing, stranding (oil)
Dry cleaning and dyeing	Dyeing and cleaning
Electrical apparatus, etc	Pitching dry batteries
Enameling and japanning	Enameling
Foundry and machine shop products	Welding, electroplating
Furniture and cabinets	Polishing and veneering
Glass manufacturing	Mixing ingredients (arsenic); decorating (benzin)
Halowax	
Iron and steel mills	Galvanizing (sal ammoniac)
Lime manufacturing	Grinding, slaking
Marble and stone	Surfacing (oxalic acid)
Oil cloth and linoleum	Mixing ingredients
Paint and varnish manufacturing	Cleaning with benzine, mfg. varnish
Paper and Roofing paper	Sizing with alum
Rubber goods	Specialty work, making inner tubes, cold cure
Soap	Handling soap
Stereo- and electrotyping	Tending batteries
Stoves and furnaces	Metal cleaning (naphtha)
Toys and games	Brazing

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

THE ROLE OF DIETETICS IN THE PUBLIC HEALTH CAMPAIGN

THE sanitation of food supplies has long received its full share of the attention of public authorities. Indeed, the natural fear of adulterated food and the ease with which this fear can be played upon by the intellectually unscrupulous demagogue have at times caused an altogether excessive emphasis to be laid upon this problem.

It is impossible to stress too strongly the need for the filtration or disinfection of water supplies and the pasteurization of milk, since experience has demonstrated, again and again, that untreated surface water and raw milk are always and everywhere likely to be the bearers of the germs of communicable disease. Shellfish layings should be supervised, slaughter houses controlled, food stores inspected, and food handlers examined, as part of the routine of an adequate department of health. Furthermore, in the interest of honesty if not of hygiene, the laws against adulteration and misbranding should be vigorously enforced; and care should be taken to preserve foods with care and to avoid those foods which are under suspicion of being decomposed.

From the standpoint of the health officer interested in the saving of a maximum number of lives, there is, however, another aspect of the food problem that is more important than all the rest put together. The number of individuals suffering from an insufficient dietary is vastly greater than the number of those made ill by all kinds of positively deleterious conditions of the food supply. We may maintain a certain skepticism in regard to the estimate that 20 per cent of the school children of America are under-nourished; but malnutrition is a very real and a very serious burden upon our national vitality, and a burden which appears to have grown heavier during the past five years. Food hygiene, the science of the selection of an adequate diet, is even more important in the long run than food sanitation. The unintelligent housewife is our problem, rather than the wicked grocer; and, as in so many other fields of public health, this problem can be solved only by education.

It is a sign of the times that Overton and Denno's admirable book on The Health Officer[1] devotes thirteen pages to food sanitation and fifteen to food values. It is significant that the more progressive visiting nurse associations are employing dietitians and visiting housekeepers as regular members of their staffs, and that municipal and state departments of health devote increasing space in their bulletins to the problem of food costs. In the schools the Child Health Organization is making a vigorous campaign for "a scale in every school" and for the use of the increase in a child's weight as a simple index of development and an opening wedge for education in food hygiene.

The work of Sherman and Lusk, of Mendel and McCollum, has laid a sound basis for the dietary teaching which should be an essential part of the work, not only of every health official, but of every practising physician as well. These investigators have made it clear that in order to obtain a diet adequate in calories, in amount and kind of protein, in salts and vitamines, at a mimimum cost, it is essential that the average food habits of the American household should be materially modified. Grain products must, of course, form the staple of the calorie allowance; but they should be supplemented far less by meat, fish, and eggs, far more by milk, vegetables, and fruits than is ordinarily the case. A reduction in meat consumption, an increase in the use of fruits and green vegetables, and particularly an increase in the consumption of milk,—these are the primary elements in the campaign for dietary hygiene. Doctor Lusk has formulated the rule that "you should never buy a pound of meat until

1. The Health Officer. By Frank Overton, M.D., and Willard J. Denno, M.D. W. B. Saunders Company, Philadelphia, 1919.

you have bought three quarts of milk," and the Department of Public Health of the American Museum of Natural History has prepared a model dietary for a family of five, which assigns the weekly food budget in the accompanying table.

The imperative necessity of knowing something about food requirements and food values must be brought home to the people and the dissemination of dietary standards of this kind will be likely to accomplish more in the actual promotion of physical health than any possible exercise of police power along the traditional lines of food sanitation. EDITOR.

BUDGET FOR A FAMILY OF FIVE FOR A WEEK

Type of Food	Amount	Per cent of Total Food Budget
Milk	21 qts.	26
Grain products	20 lbs.	15
Vegetables	23 lbs.	14
Fruit	8¾ lbs.	12
Meat and fish	6¼ lbs.	11
Fats	3½ lbs.	10
Cheese	1 lb.	3
Sugar	4 lbs.	3
Eggs	½ doz.	2
Nut products	½ lb.	1
Coffee	¼ lb.	1

Total cost, August, 1919, $12.

PRACTICAL APPLICATION OF IMMUNITY IN TUBERCULOSIS

BY W. H. WATTERSON, SURGEON, UNITED STATES PUBLIC HEALTH SERVICE (R.); TUBERCULOSIS EXPERT FOR THE FEDERAL BOARD FOR VOCATIONAL EDUCATION, WASHINGTON, D. C.

IMMUNITY is defined by Col. George E. Bushnell as resistance to an infection so severe that it would unfavorably affect or kill organisms that have not been thus infected and thereby immuninized,—a relative exemption from disease. This immunity may be divided as racial, acquired, or inherited.

Racial Immunity

Racial immunity to tuberculosis is well established,—the Hebrew having acquired immunity through centuries, as noted by the archives of history of tuberculosis among them. Today those of this race having tuberculosis are at once given a better prognosis than those of any other race.

The Irish and Swede on the other hand have had little history of this disease among them until recent centuries, and lack the racial immunity of the Hebrew, and among them the prognosis is not good and mortality is high.

The Negro, brought into slavery from a tuberculosis free nation, less than four hundred years ago, shows a death rate of three to one compared with the white man, and that this is not all racial is evidenced by the lessening proportionate death rate, as generations acquire added immunity to the disease.

The Indian, the true American, wandered about our land without tuberculosis until forced to come in contact with the tuberculous white. Opportunity for acquiring immunity had been present neither in childhood or in previous generations, and, like the prairie fire, it swept through their tribes, taking five Indians to one white man and leaving but a vestige of the once bold huntsmen of the plains. That this was not all due to racial immunity is evidenced by the fact that one tribe in Mexico, found to have had tuberculosis for many generations, shows an immunity similar to that of the white.

The Esquimos, the most recent example of lack of racial immunity, plied their trade through Canada and the occasional ships that touched their shores, free from tuberculosis, until the gold rush to Alaska took the infected among them. This virgin soil responded quickly, and a death rate of ten to one white is reported. Can we explain this otherwise than on that of racial immunity?

Acquired Immunity

Acquired immunity was evidenced in a study of our army and many other studies of the day. Little primary tuberculosis was found among our troops, though opportunity for infection was very great. A new disease to which they were not immune came among them, and influenza was rife. Acquired immunity is the greatest hope of today in the treatment of tuberculosis.

"The opportunity of infection," as Colonel Bushnell puts it, "had come to most of our boys and the resulting immunity prevented an epidemic of tuberculosis, like that of influenza."

Here comes the meat of today's opportunity to the tuberculosis worker. Infection by the tubercle bacilli is almost universal in civilized tribes by the time the age of twelve is attained; let us make use of this opportunity for immunity by the careful guidance of the infected, that their infection, in the first place, be not massive to their organism, and, second, that the organism may be supported during the building of immunity.

The child under two years of age is especially subject to gross infection and must be kept from the massive infection of the tuberculous parent, maid, or nurse. As years go on infection is sure to come, though seldom in massive doses, and with it immunity is acquired; without this early infection non-immunity leaves a fertile soil for infection at some future date.

Principles of Acquired Immunity

The Turkish medical student exemplifies the principles of acquired immunity. The students from the hills and agricultural districts showed little immunity to the disease; while those of the city showed a high degree of resistance; this resulted in much primary infection among the students from the rural districts and little among those of the urban class. Romer draws the conclusion from this observation:

"The less extensive the prevalence of tuberculosis in a population, the greater the fatality of tuberculosis; or, reversing the proposition, the more widespread tuberculosis infection is in a population, the less fatal the form of the disease."

The Question of Inherited Immunity

Inherited immunity is not so well established and yet it furnishes the foundation for racial immunity. Certainly the degree of inherited immunity is not as great as that of racial immunity, but nevertheless it is present, and we may safely say that the child of the tuberculous mother, properly cared for after its birth, is less prone to disturbance from tuberculous infection than the child of the healthy mother. The only absolute proof an animal is *not* tuberculous is to grind up and inject a guinea pig with every part of animal.

Primary infection occurs very early. Hardly a child reaches the age of two without showing positive reaction to tuberculosis, *i.e.*, evidence that he has been infected. That every infected child does not die is due to the fact that the infection at no time has been "massive" to that child and, therefore, stimulated further immunity, rather than overwhelmed the resistance of the individual.

Four Classes of the Tuberculous

Class 1.—The individual infected belonging to this class is able to withstand his infection, without any unfavorable effect.

Class 2.—To this class belongs the individual whose infection affects him to the unfavorable extent that he knows there is something wrong; but a sea-voyage vacation, or a change in his mode of life or occupation, restores him without examination by his physician or, if examined, tuberculosis is not diagnosed. The mother notices that her child's appetite is not good; he is reluctant to join his playmates at the most enticing amusements; he sleeps poorly; enlarged tonsils, adenoids, and cervical glands may be noted. Yet the child is never thought to be tuberculous, and a summer's vacation or a month at a resort or on the farm changes that unbalanced immunity, and autumn finds the child in the rose of health. Immunity to tuberculosis has been greatly increased by this experience, which at most would elicit diagnosis of scrofula, or "Tonsillitis," "Adenoids," "Indigestion," etc.

Class 3.—The infection in Class 3 so unfavorably affects the patient as to produce marked symptoms. There are noted, in the child, retardation of growth and development; in adults, afternoon temperature, rise in pulse, digestive disturbances, cough, and sweats. Physical examination reveals changes in the lung; in the primary infection these changes are râles only; in the exacerbation cases, there exists evidence of old lesions upon which is superimposed the evidence of an extension of the disease. A diagnosis of tuberculosis is usually made, and sanatorium treatment either in sanatorium or at home is insisted upon. Some *sanatorium treatment is essential to raise the immunity to the point of balance.* More or less destruction of tissue is sure to result before this balance is attained. The resistance is again raised and resistance is established to the point of ever increasing the immunity. The steps of recovery, improvement, quiescence, and apparent arrest, depend on the relative symptoms more than the signs, and on the time last symptoms or signs were noted.

Class 4.—Here the infection has produced all the unfavorable effects noted in Class 3. The individual may take advantage of every means to again restore his immunity or he may not resort to such restorative measures; in either case the ability to restore immunity is not sufficient. The resulting increased toxins destroy tissues and lessen the amount of functionating lung; other organs become involved or general toxemia brings a speedy end. We have here the picture of what is called "quick or galloping consumption."

Progress by Insensible Degrees

How are we to judge to what class a given patient belongs? No one, by any scientific means now at hand, can judge to which class the patient belongs after passing Class 1; therefore, every tuberculous patient should avail himself of the tripod in treatment,—rest, diet, and fresh air.

It is known that the glands and blood have a relatively easy chance to increase the immunity

in youth; but that when primary infection occurs in adults, this power is not very active, which explains the result in Turkish students. Individuals not now infected will be, under present conditions in all civilized countries, and the chances are rather high for adult infections to progress to Class 4. Thus, it may be said that infection in childhood is a fortunate asset, to the child, against future infection. The guinea pig, a most susceptible animal, infected by large doses of tubercle bacilli, quickly dies of generalized tuberculosis; but, if infected by a small dose of tubercle bacilli, recovers after having developed temperature and other evidence of toxemia. A few months later this same guinea pig, injected by a much larger dose of tubercle bacilli, showed a different response to infection. There usually follows a local reaction, possibly a local abscess; but there is no general reaction; no temperature; that is, an immunity has been established as a result of the first infection. This immunity is common with all. Immunity is *partial*, there being no such thing as a perfect immunity. Therefore, a large enough dose may be given this pig on the second or third injection to be a "massive" infection, and an overwhelming toxemia will result. The chances of such occurrence lessen with each gradually larger dose of infection, until any ordinary amount of infection has no ill effect. Immune persons are in the position of the guinea pig, having received increasing injections until immunity approaches perfection. The results and practical applications of the principles are: Practically all tuberculosis in the army is an exacerbation of an old infection in an immunized individual. This immunity has been lowered by some such unusual strain as trench hardships, and this temporary deficit in immunity is usually so slight that it may be overcome by such trifling helps as rest, diet, and fresh air.

The Means of Infection

It follows that the danger in the tuberculosis hospital has been exaggerated; three nurses die of tuberculosis in a general hospital to one in a tuberculosis hospital. It is exceedingly rare that orderlies, maids, and attendants in a tuberculosis hospital have tuberculosis, notwithstanding that some 90 per cent of the physicians employed in tuberculosis hospitals before the war had been attracted to that specialty either because of previous tuberculous disease in themselves or in some member of their family; yet proportionately more physicians in general practice die of tuberculosis than of those employed in tuberculosis sanatoriums. The real danger from tuberculosis is not by breathing the air in a tuberculosis ward, but from *contact* with the case. Such simple rules as, "Wash your hands after your duties and don't eat in the ward," obviate most of the danger of the massive infection. The greatest danger lies in the massive infection of the child by a tuberculous parent who fondles her child, or is so careless with sputa that the child creeps into the sputa-smeared floor, and then conveys this massive infection to the mouth from his hands.

The object of this paper would have been defeated, if in the least it minimized the importance of the care of sputa. Little is known of what constitutes the massive dose for any one; and, aside from personal danger, our duty must extend to the patient himself, who, already having lowered his immunity, must not be permitted to add to the burden of restoration. Most of all, we must ever make the patient careful for the sake of that non-immune babe at home to whom he is to go, to whom he will most certainly carry the infection in massive doses unless we perform our duty of constantly warning the patient properly to dispose of his sputa. He, of all others, is unable to measure the dose or virulence of his infection.

THE TEACHING OF PRACTICAL MIDWIFERY

The appalling death rate, almost entirely preventable, from childbirth in England will never be reduced to a minimum until the hospitalization for lying-in cases is greatly increased, says *The Lancet* of December 13, 1919, in reporting the discussion of the Obstetrical Section of the Royal Society of Medicine; nor will facilities for the proper training of the medical student and the midwife in obstetrics be adequate until the hospital beds available for teaching purposes are far in excess of the present proportion.

The policy regarding hospital accommodation contemplated by the Ministry of Health will involve complete reorganization of the Poor-Law infirmaries and a reconsideration of their relationship to general hospitals and to the hospitals associated with medical schools; and in connection with this latter relationship some means should be found for making use of the vast amount of material in these institutions for clinical teaching. The teachers in midwifery at the medical schools should remember that if the suffering and mortality of childbirth are to be ameliorated, any plans must improve the teaching not only of the medical student but also of the midwife.

Accommodations temporarily provided for maternity cases in the smaller hospitals are admittedly defective, and these should ultimately be affiliated to the larger institutions so that they may be able to command the services of experts who form members of these staffs. The provision of large maternity centers in various parts of London, fully equipped for the reception of lying-in cases and perhaps also for gynecological cases, and certainly should be associated with maternity and child welfare centers, must be a feature of hospital evolution.

The Obstetrical Section is urged to draw up alternate schemes so that in the development of the plans of the Ministry of Health the teaching of midwifery will be provided for under a well defined policy.

A COATING FOR POISON TABLETS FOR THE PREVENTION OF ACCIDENTAL POISONING

By GRAY PHILLIPS, M.D., Brooklyn, N. Y.

MORTALITY statistics show that a considerable number of deaths are caused every year by the accidental swallowing of mercuric chlorid and other poison tablets. Although complete figures are not available, the mortality experience of the Metropolitan Life Insurance Company in their industrial department may be taken as representing the extent of such poisonings among the entire population of the country.

Deaths Charged to Accident

During the single year of 1917, in which such a separate tabulation was made, 180 deaths were charged to accidental poisoning by solid or liquid poisons, and of these, 26, or 14.4 per cent, were reported as due to bichlorid of mercury. It should be remembered, however, that although these deaths are reported as accidental they undoubtedly include poisonings involving suicidal intent. Even making allowance for such exceptions it is evident that a considerable number of deaths occur each year which are due to the accidental swallowing of bichlorid of mercury tablets. The growing domestic use of germicidal tablets is responsible for the increasing frequency of these accidents, while the publicity given poisoning cases by the press undoubtedly suggests the use of bichlorid to those unfortunates who seek some convenient and sure means of self-destruction.

The majority of these poisonings are preventable but their prevention rests upon some means more sure than any or all of the safeguards yet devised. With this purpose in mind, the author has developed a coating intended to render poison tablets innocuous when swallowed, but which interferes in no way with their use for making germicidal solutions.

Poison Rendered Innocuous

The contrivance consists of a coating of wax, the wax having a melting point above the highest climatic temperature, one which is not brittle and therefore which will not crack or scale from the tablet in handling; and, above all, which not only is insoluble in water but is not affected by the digestive juices. Tablets coated with such a wax pass through the alimentary tract unchanged and consequently prevent any solution or absorption of the tablet substance while in the body. By breaking the tablets they may be readily dissolved when it is desired to prepare solutions from them.

After many trials, during which a large variety of substances has been rejected as unsuitable for this purpose, a coating has been developed which not only satisfies all theoretical requirements but which meets every demand for practicability. By mixing equal parts by weight of candelilla wax and a paraffin having a melting point of 56°C., a wax is obtained which melts at 70°C., which has a low coefficient of expansion and, therefore, little brittleness; which is unaffected by dilute acids and alkalies and which is not attacked by digestive ferments. Furthermore, the device represents no serious difficulties as to manufacture. The machines employed for coating pills with gelatin are equally well adapted for applying the wax coating to tablets, while the combined cost of the materials and the process for quantity production is negligible.

The perfected coating has the added advantages of protecting the tablet from moisture, and from breaking or crumbling in the container. Deterioration is prevented, and exact dosage is assured.

A Test of Its Efficacy

In order to put the efficacy of this wax coating to a practical test the following experiments were carried out:

Experiment I.—As a preliminary control, three individuals swallowed one, two, and three uncoated one-grain tablets of methylene blue, respectively. The dye appeared in the urine of all three and in the case of the individual taking three tablets it persisted for forty-eight hours. When the urine no longer showed any trace of the dye the same individuals swallowed one, two, and three one-grain methylene blue tablets covered with the protective wax coating. This test was then repeated several times with ten individuals, the coated tablets being taken on an empty stomach and just prior to and after a hearty meal. In no case did any dye appear in the urine, and the tablets were recovered from the feces with the coating intact.

Experiment II.—A normal dog, fed on a full diet of meat, bread, milk, and water, was given three one-grain methylene blue pills provided with the wax coating. During the whole period of observation no dye was excreted in the urine and fifty hours after ingestion of the tablets they were recovered intact from the feces.

These experiments show that the wax coating is neither dissolved nor digested in the alimentary tract of man and resists the greater gastric acidity and longer sojourn in the intestine of the dog. Further, no diffusion of the ingredients of the tablet takes place through the coating. The wax envelope, therefore, resists the digestive fluids, is impervious to diffusion of

crystalloids, and, while having a melting point high enough to remain unaffected at temperatures far above those of the body, the coating would be sufficiently flexible to retain perfect cohesion when subjected to the tumbling it suffers in the digestive canal.

As additional safeguards it might be desirable to impart to the wax coating a distinctive color; to incorporate in it some gritty substance, such as sand, which would warn the person biting or chewing the tablet that it was inedible, and also to add to the coating some bitter principle.

A wax coating has been devised which can be easily applied to poison tablets and which is intended to lessen the possibility of accidental poisoning. This coating, being insoluble and indigestible in the digestive tract, prevents the solution of the tablets while in the body; but in no way interferes with their use in making germicidal solutions.

A CRITICAL SURVEY OF PUBLIC HEALTH TOPICS

By JULES SCHEVITZ, General Secretary, Oklahoma Tuberculosis Association, Oklahoma City, Okla.

I. Automobile Fatalities in the United States.
II. Infant Mortality in Saginaw, Mich.
III. Bad Housing and Ill Health.

I—AUTOMOBILE FATALITIES IN THE UNITED STATES

SOME very convincing and startling evidence that automobile fatalities are assuming large proportions in this country each year appears in a recent issue of the *Monthly Bulletin*[1] of the Newark, N.J., Department of Health. Statistics of fatalities for twelve large American cities are given for the years 1909 to 1918, and it is observed that while the average rate for the first half of the decade was 33.8 per million population, the rate for the second half, 1914-1918, increased to 99.4 per million.

On page 157 is presented a table taken from the article giving the mortality from automobile accidents in the United States registration area for 1906-1917 which shows conclusively that the automobile has become a serious menace.

In 1906 there were only 183 fatalities from automobile accidents in the registration area, but by 1917 this number had increased to 624. In the urban area the rate increased from 6.3 per million population in 1906 to 95.1 in 1916, while in the rural area the rate increased from 1.3 to 48.5 during the same period. Says the author of the article, "These figures are startling but true, and are a clear indication of the future, unless more intelligent, extensive, and vigorous organized effort is made to abate what has become not much less than a crime against our boasted civilization."

1. Monthly Bulletin, 1919, n. s., iii, No. 33.

That education and regulation will help reduce these fatalities is borne out in numerous instances where intensive effort has brought about a decided decrease in automobile fatality. In New York City, with the most carefully policed traffic in the United States, the rate of automobile fatalities has been the lowest.

The sex distribution of the automobile fatalities is an interesting feature of the problem. It is found that there are about four fatalities among males to every one among females. The age distribution reveals that about one-half the fatalities occur between the ages of twenty and fifty-nine years and about 40 per cent under twenty years.

II. INFANT MORTALITY IN SAGINAW, MICHIGAN

THE social and economic conditions underlying infant mortality have been the subject of intensive inquiry by investigators working under municipal, state, and national direction. Perhaps the most noteworthy and exhaustive of these are the brilliant researches conducted under the auspices of the Children's Bureau which has in the last few years reported on a series of studies on the causes of infant mortality in Johnstown, Pa., Manchester, N. H., Brockton, Mass., and Saginaw, Mich. The results of these studies possess the added value of offering a basis for comparison in that in the last three cities named the methods of procedure were practically identical.

The study of infant mortality in Saginaw,

Mich., is of special significance because of the city's unlikeness to those previously visited. Saginaw is a city of widely diversified industrial life, located in a rich agricultural region. It possesses, therefore, few of the characteristics of Johnstown, Manchester, and Brockton which are, respectively, iron and steel, textile mill, and shoe factory cities. Furthermore, Saginaw had the relatively small foreign born population of only 23.2 per cent; and comparatively few women were employed in industry, as compared with the large proportion at work in the textile mills of Manchester.

Included in the study are 1,015 births occurring during the year ending November 30, 1913, and the deaths under one year of age occurring in this group. Thirty-four, or 3.3 per cent were stillbirths, and 83 of the 981 live-born infants died, giving a mortality rate of 84.6 per 1,000.

The father's earnings are assumed to be the best obtainable index of the economic status and the standard of living of the family. A striking relationship between the infant mortality and the father's earnings is shown in the following figures:

Earnings of Father	Infant Mortality Rate per M.
Under $450	179.5
$ 450 to $ 549	112.2
$ 550 to $ 649	103.4
$ 650 to $ 849	105.7
$ 850 to $1,049	44.6
$1,050 to $1,249	33.0
$1,250 and over	22.2
Average	84.6

Analysis of these data brings out the significance of the standard of living of the family in its necessarily important bearing upon the vitality of the children.

The mortality rate with but a single exception falls consistently as the father's earnings increase, but the rate does not fall below one hundred until the group of $850 to $1,049 is reached. In other words, the babies in families where the earnings of the families are low die at a much higher rate than do those whose fathers are able to provide sufficient care for them.

The infant mortality rate in the lowest and highest earnings groups were 201.9 and 59.9 for New Bedford and 242.9 and 58.3 for Manchester, respectively. The higher economic status of the Saginaw families is described in the following paragraph quoted from the Children's Bureau report.

> Saginaw is in the center of a rich farming country and prices of food products are relatively low, with no commission, storage, or transportation charges to be paid. Beet sugar is made in a factory just outside the city limits. Rents are low. Nearly one-half of the families visited owned their own homes. In many cases the home is set in a small plot of ground, with a few fruit trees, a wired inclosure for chickens, and a thriftily cultivated vegetable garden. The cost of fuel is low, partly on account of the presence of coal mines in the city, some of which are cooperatively owned. With these advantages, the small family of Saginaw can live in simple comfort on earnings that would spell poverty for the tenement-housed families in other or larger cities.

Further emphasis of the relatively high economic status of the Saginaw group can be seen from the following figures showing the percentage distribution of births in the three cities according to father's earnings groups.

	Under $550	$550-$849	$850 and over
Saginaw	17.9%	40.0%	39.0%
Manchester	30.4%	44.0%	22.9%
New Bedford	37.7%	38.0%	21.3%

The gainful employment of the mother during the year preceding the birth of the infant appears to be a factor in the causation of a high infant mortality. The mortality rate for the infants of working mothers was 132.7, as contrasted with 78.3 for infants of mothers not gainfully employed. Figures collected in other cities show a difference in the infant mortality when the mother is employed away from home in distinction from being employed at home, the rate being lower in the latter group. Another interesting observation is that although only one-fifth

AUTOMOBILE FATALITIES IN 1906-1917 IN THE UNITED STATES REGISTRATION AREA

	Total Area (Registration) Fatalities		Urban Area Fatalities		Rural Area Fatalities	
Year	No.	Rate	No.	Rate	No.	Rate
1906	183	4.4	163	6.3	20	1.3
1907	294	6.8	240	9.1	54	3.5
1908	393	8.4	322	11.7	71	4.1
1909	632	12.4	500	16.9	132	6.2
1910	980	18.2	721	23.1	259	11.5
1911	1,291	21.8	985	30.4	306	11.4
1912	1,758	29.1	1,316	39.5	442	16.3
1913	2,488	39.3	1,801	52.6	687	23.6
1914	2,826	42.8	1,930	54.9	896	29.1
1915	3,978	59.1	2,752	75.9	1,226	39.5
1916	5,193	72.5	3,509	95.1	1,684	48.5
1917	6,724	88.6	Data not yet available			
1906-09	1,502	8.2	1,225		277	
1910-13	6,517	27.5	4,823		1,694	
1914-17	18,721	66.7				
1914-16			8,191		3,806	

of the foreign born mothers were employed, one-third of the infant deaths in this nativity group occurred among their babies.

The employment of the mother during the year following the birth of the infant does not seem to have had an unfavorable effect on the infant mortality, according to the data gathered at Saginaw. This may possibly be due to the fact that only few mothers were thus gainfully employed.

Certain workers, notably Dr. Julius Levy, of Newark, regard the employment of the mother at this time of even greater importance than the father's earnings in determining infant mortality. It is claimed that the detrimental effect of the mother's employment lies primarily in her inability to give her child sufficient maternal care. In order to reduce infant mortality we must guarantee "to every baby its birthright of maternal nursing and 'mothering,' and to every mother her maternal right and privilege to mother and nurse her own infant," states Doctor Levy.[2]

Of the infants surviving at the end of the first month, 87.9 per cent were exclusively breast fed. The large proportion of breast fed infants gives very little chance for gasto-intestinal diseases; only a very small percentage of deaths resulted from that cause. Thus one of the most important factors in the causation of infant deaths was reduced to a large extent. The mortality among artificially fed infants was much greater; throughout the first nine months the rate was at least twice as high.

Of 117 losses studied, thirty-four were still-births, and thirty-four were deaths under two weeks of age. Eighteen of the deaths at later ages were due to causes peculiar to early infancy and malformations, making prenatal causes responsible for more than two-thirds of the total losses. According to the leading authorities, these losses can be reduced by care of the mother during pregnancy and by good obstetrics.

III—BAD HOUSING AND ILL HEALTH

That bad housing is frequently a contributory factor in the causation of disease,—especially communicable disease,—is generally accepted by health workers but, unfortunately, very little has been done to ascertain in a scientific manner those conditions which have this detrimental effect. Some of the undesirable features in house construction are given by Prof. James Ford,[3] and many of these are especially inherent in the multiple type of dwelling.

This type of dwelling is described by Professor Ford as "a structure five or six stories high, or perhaps higher, built largely of wood, but with brick exterior, three or four rooms deep, sharing party walls with similar buildings to the right and left, sharing with its neighbors a narrow court or shaft, at the sides and at the rear an ugly yard, with board fences, filled with clothes lines and drying clothes, outbuildings, and probably ash, garbage, and refuse cans; and in the front sharing with its neighbors an ugly, monotonous, treeless, dusty, paved street."

This picture describes the urban home of the middle classes, but in describing the homes of the wage earners who constitute the major part of our urban population, must be added the inevitable dark hallway, the common toilet, disrepair, and unsanitary conditions resulting from years of careless usage.

Such dwellings may contribute to ill health on the part of the occupants through the following conditions:

1. Through improper location, by building on wet and imperfectly drained land, or by placing the building in a highly exposed position.
2. Through use of wood for interior or exterior construction, tenants are exposed to continuous fire risk.
3. Through defective structure or bad repair, there may be continuous danger to life and limb from accident.
4. Through defective orientation, tenants may be deprived of sunshine, and even of adequate light.
5. Through excessive height, there is not only an increased fire risk, but stair-climbing is a hardship to the aged, and a limitation to the play activities of the young.
6. Through crowding of many families in the same building, the chances of exposure to certain infectious diseases are increased.
7. Through crowding of population within the tenement, block, or district, the density of population adds to the nervous wear and tear and sleeplessness.
8. Through crowding of rooms, the chances of communicating disease by direct contact or droplet infection are increased.
9. Through inadequate plumbing, such as lack of water supply, personal cleanliness and housecleaning become more difficult.
10. Through poor ventilation, due to windowless rooms or other reasons, there are discomfort and possibly reduced resistance to disease.
11. Through poor lighting, the rooms which are dark are likely to be dirty. It may also result in impairment of vision.
12. Through improper equipment, such as a sink set too low, a leaky stove, defective gas fixtures or electric wiring, discomfort and danger to life are likely.
13. Proximity of tenement to factories may mean poisoning of the air by chemical gases, mineral dust, or soot.

2. Levy, Julius, M.D.: Reduction of Infant Mortality by Economic Adjustment and by Health Education. Paper read before the National Conference of Social Work, Atlantic City, June, 1919.

3. National Conference of Social Work, 1919. Monthly Review, U. S. Bureau of Labor Statistics, July, 1919.

A little country school house in a neighborhood forty-five miles from medical aid and practically isolated in winter. Depends upon county medical supervision for health guidance.

This is an isolated school with four pupils, three in need of medical care, where the county health message became 100 per cent effectual.

MEDICAL INSPECTION IN BIG HORN COUNTY, MONTANA

By W. A. RUSSELL, M.D., County Medical Officer, Hardin, Mont.

In the belief that the methods previously employed by the health department were primarily wrong, we persuaded our county commissioners to adopt the more modern conception of disease prevention through educational methods rather than a dependence upon control by quarantine after disease has developed. For our educational health campaign we are furnished a baloptican for the projection of suitable pictures and a miscroscope to demonstrate to the parents and children that cell and germ life is not a theory, but a reality.

Object Lessons in Sanitation

Thus equipped, we go out over the county and examine the children for defective eyes, hearing, teeth, adenoids, or enlarged tonsils. Each child is weighed and measured. If time permits, the microscope is used to give the children an idea of cell and germ life, after which we usually catch a fly and show the filth on his feet, and his wonderful eyes. We are then ready to discuss freely how disease germs are carried from infected places and open toilets to the food, thereby causing disease.

In some instances two or three schools combine for these health demonstrations and the parents come with well filled lunch baskets. After a hearty picnic dinner we use the miscroscope to demonstrate to the parents anything which will be of practical benefit to that neighborhood. We discuss with them such questions as the home care of influenza patients, the diagnosis of spotted fever, the treatment of rattle snake bite without the use of whisky, and other timely subjects.

A clinic is held for the defective children, and discussion with the parents brings out what can be done to remedy the defects disclosed by the physical examination. Last year, out of fifty-two children with defective eyesight, twenty-six were fitted with glasses.

Reach the Isolated Districts

Picture No. 2 shows a little country school house on the top of the Rose-Bud mountains, where fifty-eight parents and children came to discuss better health and better sanitation for the neighborhood. They are situated forty-five miles from medical aid and, being practically snowed in during the winter, they must depend upon themselves. Anything the public can give them along the line of education and health is much appreciated.

In 1917, when we first started this work, we visited a school where the purpose of a school yard had been misunderstood, and thirteen horses and four colts were running loose in it. The outbuildings were in a deplorable condition and the school yard, which should have been neat and clean, was nothing more than a veritable barn yard. The children rolled and played in the filth, then came in and ate their lunches without washing their hands, and with good reason for there was not a drop of water on the premises with which to wash their hands or even to drink. The school board received a very plain talk from the Health Officer. The next visit to the school showed conditions somewhat improved, but some antagonism still existed. That evening we put on an illustrated lecture on sanitation and how flies spread disease. After it was over, one of the farmers was heard to remark that he thought that lecture was somewhat exaggerated, as they had always had flies at his house and none of the family had died yet.

Immediate results from a health talk. After a demonstration of the danger the children in this rural school in Montana immediately banked up the toilet, making it fly proof.

This group had no sense of community responsibility for health conditions until the county work brought it home to them. In two years antagonism was transformed into cooperative enthusiasm for local betterment.

In 1919 we again visited this school, but with a difference in our reception that demonstrates the value of the work. Every parent came out, watched, and discussed the examination of the children, after which a picnic dinner was enjoyed. This was on a Friday afternoon, and on the following Monday two of the children were taken to Sheridan, where one had his tonsils removed and the other was fitted out with glasses.

One day by special request we made a trip up into the mountains to visit a little school with only four pupils. Of these four, one had defective eyesight, one had enlarged and diseased tonsils, and one was sadly undernourished, possibly in the first stages of tuberculosis. We spent the entire day with those pupils and their teacher, and count it as one of the most profitable days we ever spent in health work, as we seemed to open up a new world to them by use of the lecture and miscroscope.

During the year of 1919 there were only thirty deaths in the county among a population of 7,000 white people; and there were no deaths from typhoid fever, tuberculosis, or preventable bowel diseases in children under two years of age. This makes the death rate for Big Horn County only four and one-half per thousand for 1919, which is as low or lower than any county in the state of Montana.

This is only a glimpse into the inside workings of the health department of Big Horn County, but it is accomplishing definite gains for health and is arousing a real community interest in health conditions.

A HOSPITAL AND HEALTH SURVEY

By HOWELL WRIGHT, Secretary, Survey Committee, Cleveland Hospital Council Hospital and Health Survey, Cleveland, O.

Hospital and health activities have a common purpose. It is better public health and fewer preventable deaths. There are four fundamental contributing factors to the efficient work of all hospital and health organizations working to this end. These are: (1) Development of medical education, both post graduate and under graduate. (2) Development of nursing education, both general and special. (3) Advancement of public health and preventive medicine. (4) Care of the individual sick. Due consideration must be given to each of these four factors in considering the work of any individual hospital or health organization or group of such organizations or community hospital or health needs.

The work of this Committee may be divided into two parts:

Part I.—A survey and study of the existing hospital and health facilities,—public or private, of Cleveland. It should determine the contribution which is now being made to the common end by the different institutions individually and collectively; discover ways in which these institutions may be made to contribute more by reasonable changes either in the division of labor with other institutions, the volume of work done or contemplated, or in the way of doing the work. This involves a study and survey of:

(1) Medical education in Cleveland as at present conducted.

(a) Use of clinical material and facilities in Cleveland; by the medical school for under graduate instruction; for post graduate instruction of young medical men; and for instruction and development of the medical profession in general.

(2) A study of the nursing education as conducted at present in Cleveland.

(a) Training schools giving general nursing education.

(b) Facilities for providing nurses with special education and training.

(3) The Department of Public Health and the city of Cleveland and its relation to the hospitals, dispensaries, and other medical institutions, and the profession in general; its activities in the care of contagious diseases and in preventive medicine.

(4) A study of the present existing hospitals and their plans for extension to determine

(a) The available and contemplated facilities for pay or private room patients; part-pay and ward patients; and free patients.

(b) The probable normal needs of the community for each of these classes of accommodations.

(5) A study to determine the present and contemplated facilities as well as the probable normal needs of the city for the care of certain classes of sick: Contagious, including venereal diseases. Acute surgical. Acute medical. Chronic, surgical, and orthopedic. Chronic, medical. Convalescent. Insane and mental diseases. Aged and infirm. Maternity cases. Babies and children. Accident and emergency cases.

(a) The immediate development of facilities for such patients as means of saving hospital space.

(6) Dispensaries. A study of their location as to their availability to all Cleveland citizens in need; the type of cases receiving treatment therein; the facilities of the various dispensaries to do properly the work undertaken.

Part II.—The second part is a more extended study of the community to determine the ideal number, grouping, location, character, and functions of the hospital, medical, and health institutions which can best serve Cleveland at present and during the reasonable future development of the city. This entails the following:

(1) Morbidity accident and mortality rates for the city, as a whole, and by districts, based on city statistics, questionnaires to doctors, hospital and dispensary records, Industrial Commission reports, United States Census figures on occupations, races, and ages, and morbidity censuses in other cities, perhaps house to house canvass of selected districts to learn amount of sickness, total and classified.

(2) Care secured by the sick. Economic ability to secure care. Home conditions affecting care. Knowledge or ignorance of existing facilities. Effects of agencies to reach those needing their care. Constituencies of various hospitals or attraction of hospitals for various groups. Survey of adequacy of home care in typical neighborhoods.

(3) Capacity and facilities of existing agencies for giving the amount of remedial care shown to be needed by studies of the amount and present care of all sickness, accidents, and by prospective increase of population.

(4) The estimate reduction in sickness from extension of preventive medicine and health insurance, based on European experiences.

(5) The medical school's relation to present and future hospitals, dispensaries, sickness prevention, and the health department.

(6) The relation of nurse training schools to present and future hospitals, dispensaries, sickness prevention, and the health department.

Canadian Public Health Association

The ninth annual meeting of the Canadian Public Health Association is to be held in Vancouver in June, 1920. The Canadian Medical Association will meet at the same place at the same time.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

MINIMUM STANDARD OF THE AMERICAN COLLEGE OF SURGEONS

THE superintendent, the staff, and the trustees are willing and eager to make their maximum effort for any patient in the hospital. That fact is true in almost every hospital on this continent. But do the superintendent, the staff, and the trustees coordinate their efforts so that every patient really gets the benefit of their combined energy and intelligence? In the terms of the stock market, that question is "prime stuff"; and it is just this question which the American College of Surgeons asks. The "Minimum Standard" penetrates through the complexities and reaches the heart of the matter. It is undebatable and is probably the most vital document which has come to hospitals in many years. Any hospital which does not meet that standard today has work to do. The standard is as follows:

1. That physicians and surgeons privileged to practise in the hospital be organized as a definite group or staff. Such organization has nothing to do with the question as to whether the hospital is "open" or "closed"; nor need it affect the various existing types of staff organization. The word staff is here defined as the group of doctors who practise in the hospital, inclusive of all groups such as the "regular staff," the "visiting staff," and the "associate staff."

2. That membership upon the staff be restricted to physicians and surgeons who are (1) competent in their respective fields and (2) worthy in character and in matters of professional ethics; that in this latter connection the practice of the division of fees, under any guise whatever, be prohibited.

3. That the staff initiate and, with the approval of the governing board of the hospital, adopt rules, regulations, and policies governing the professional work of the hospital; that these rules, regulations, and policies, specifically provide:

(a) That staff meetings be held at least once each month. (In large hospitals the departments may choose to meet separately.)

(b) That the staff review and analyze at regular intervals the clinical experience of the staff in the various departments of the hospital, such as medicine, surgery, and obstetrics; the clinical records of patients, free and pay, to be the basis for such review and analyses.

4. That accurate and complete case records be written for all patients and filed in an accessible manner in the hospital, a complete case record being one, except in an emergency, which includes the personal history; the physical examination with clinical, pathological, and x-ray findings when indicated; the working diagnosis; the treatment, medical and surgical; the medical progress; the condition on discharge with final diagnosis, and, in case of death, the autopsy findings.

5. That clinical laboratory facilities be available for the study, diagnoses, and treatment of patients, these facilities to include at least chemical, bacteriological, serological, histological, radiographic, and fluoroscopic service in charge of trained technicians.

"It has been the boast of the medical profession," says *The Lancet*, of January 10, 1920, in stating that no schools of rational psychotherapy have ever been established for the instruction of the student of medicine, "that improvements in the mental and physical hygiene of the race have been preceded by the discoveries of medicine. We must see to it that we lag not behind in our application of psychological methods to psychological disease. With a systematic initiation into the prevention, recognition, and cure of the earliest stages of mind diseases, the same proportion of our young graduates should turn their steps in the direction of psychotherapy as at present are attracted by any of the specialties."

THE NEUROTIC GIRL*

By JESSIE TAFT, Ph.D., Director, Department of Child Study of Seybert Institution, Philadelphia, Pa.

WHO is the neurotic girl? Neurotic is a term used very freely by lay persons as well as physicians, and frequently with a decidedly derogatory sense. I have heard broad-minded social workers as well as intelligent physicians say with a note of kindly contempt and complete finality, "Oh, she's just another neuro."

On the other hand, we read in psychiatric literature that the neurotic supplies a most valuable impulse forward in our civilization. He is the upsetter of tradition, the discontented, unadjusted element that refuses to accept old inadequate ways of doing things. Sometimes one wonders whether, if the repressions of the neurotic produce such creative results in art, literature, and social structure, psycho-analysis is not a bit rash in showing to the neurotic the way of normal living.

Maladjustments are modifiable through correct interpretation of the behavioristic reaction.

Many children who go to make up our incorrigibles could be saved by the public school.

It would mean teachers with a new psychology. It would mean more time to each individual child. It would mean small classes, more buildings, more teachers.

In the long run it would save money. Attention to neurotic children has to be given some time. If we refuse it early, they exact it later in our many institutions, in ruined homes and in wasted lives.

Adjustment on Basis of Handicap

Will adjustment mean loss of genius? We may comfort ourselves with the thought that not all neurotics are geniuses, and that the world stands to gain as much by the salvage of otherwise waste material as it may lose in the brilliant products of an unhealthful repression. Stevenson's genius may have been enhanced and his writings made more poignant by virtue of his lifelong ill health, but that will not prevent us from obtaining healthy bodies for our children if we can. Charlotte Brontë may have thrown herself more blindly and passionately into literary expression because of the impossibility of real satisfaction for any of her cravings and because of her ignorance of the character of those cravings, but we shall still believe in the evolutionary value of a growing mental health in our society made possible by a recognition of and conscious effort at adjustment and use of our instinctive life.

The pitying or contemptuous attitude of finality toward the maladjusted individual is equally hopeless for a mental hygiene program. If the label "neurotic," as is so often the case with the label "*dementia praecox*," prejudges the case in the eyes of the general practitioner, the social worker, and the public, why talk of mental health at all or of the possibility of influencing it for the better?

In discussing the problem of the neurotic girl, then, I am obliged to give not a medical diagnosis or list of differential symptoms, but a social definition in terms of behavior which we assume to be modifiable in greater or less degree. The question of presence or absence of constitutional basis must be ignored inasmuch as for our purposes it is immaterial. If there is a constitutional tendency toward instability, the altering of behavior will undoubtedly be more difficult. There is an ever present, unchangeable handicap, but improved adjustment on the basis of just this handicap is surely possible. For instance, a feeble-minded child has a constitutional defect, but, given that defect, it is still possible to find a level on which he can make a fairly good adjustment. His behavior is not necessarily bad because his intellect is defective. Because the neurotic individual has an over-sensitive, unstable, nervous make up, does not mean that he cannot learn to use it to the best advantage.

Social Response Object of Education

On the other hand, we must all admit that the line between the neurotic constitution and the normal constitution whose reactions have been developed along an unhealthy line by the peculiar combination of internal and external circumstances is an extremely hard one to define. It is far safer to ignore as much as possible the presence or absence of the organic basis and work on the concrete problems presented in the bad contacts which any given individual is making with reality. Now, see what has happened,—the term neurotic has lost all significance because our standard of measurement, that is, adequate or

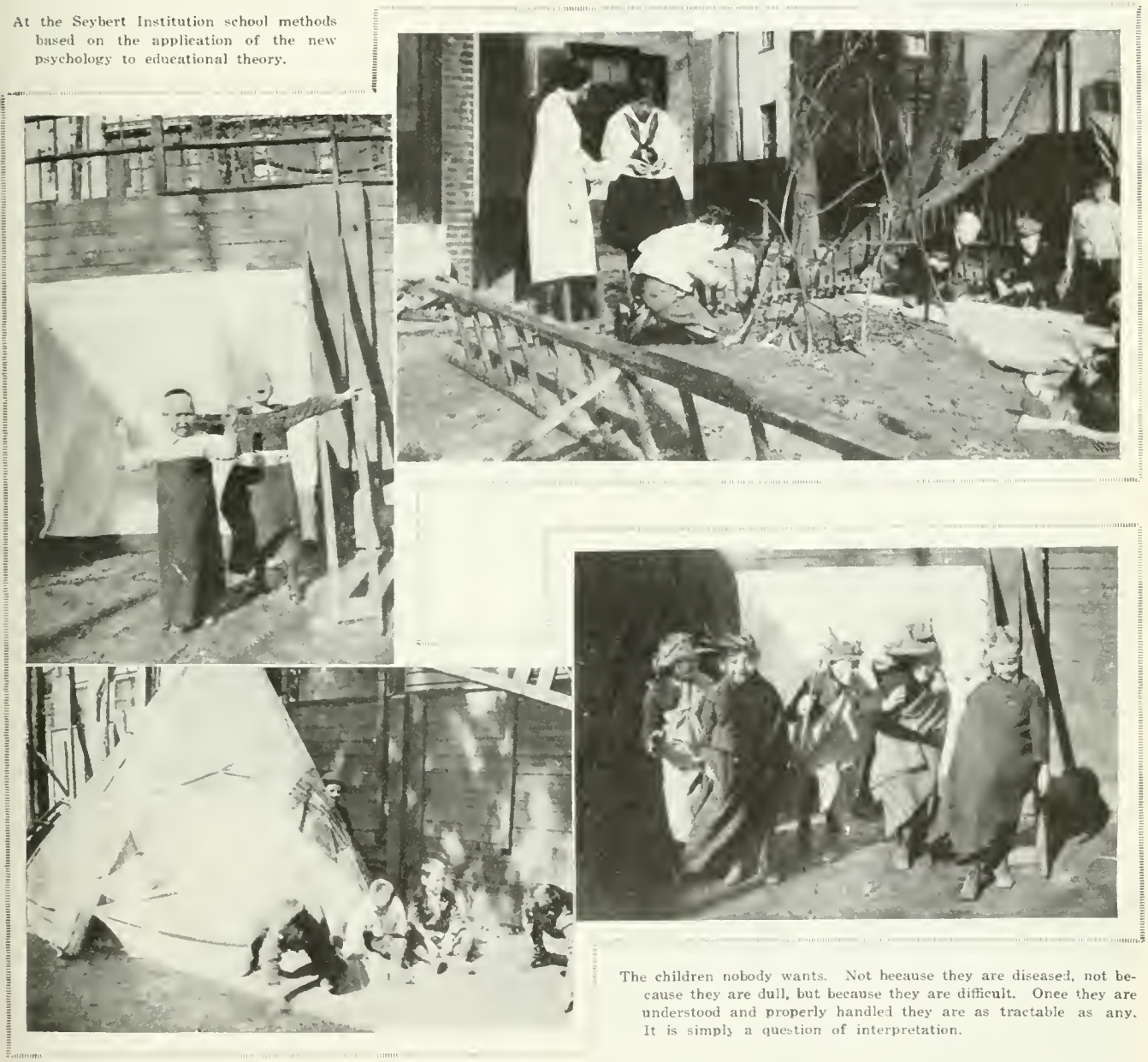
*Read before the International Conference of Women Physicians, New York, October 18, 1919.

efficient social adaption, applies to everybody, normal or abnormal. We need no longer worry about labels or diagnoses, the procedure is the same. The only question is: here is a person who is not making efficient contacts; how can he come to realize the cause of his difficulty? Or, if he is too young for that, how can we remove the causes so that he will naturally respond in a more so-

neurotic girl is always somewhat normal; at least, her mental machinery is at bottom of the same make, however badly she may be using it. Consequently, an environment and educational method which is peculiarly bad for the neurotic girl cannot be very good for the normal although the latter may have a better chance of surviving.

As I see it then, the question I have really been

At the Seybert Institution school methods based on the application of the new psychology to educational theory.



The children nobody wants. Not because they are diseased, not because they are dull, but because they are difficult. Once they are understood and properly handled they are as tractable as any. It is simply a question of interpretation.

cially desirable way? In other words, I find myself unable to differentiate between the problems that arise in the life of the so called neurotic girl and the problems that arise in the life of every girl. In consequence I am helpless to describe an environment and educational system which is good for one and not for the other. As I see it, the normal girl is always somewhat neurotic and the

asked to discuss is in what way can education and environment be made to solve the problems of mental health that are so acutely and conspicuously present in the life of the so-called neurotic girl, but are common to all, girls and boys alike.

It is obvious that what we have here is the whole great problem of a possible conscious control of mental and social life; the entire question

of whether social evolution is going to make mental health and social adaption as responsive to human desire and human needs, as it bids fair to make physicial health. Such a problem cannot be limited to any one group of people, like the psychiatrists, for its solution. It is a question with which society as a whole must eventually struggle. Just now, however, about the only light we have on the subject is coming from a comparatively small and modern group of psychiatrists. The psychologists, shut up as they have been until recently in their laboratories, have busied themselves with artificial problems or with the purely intellectual situation, and they are only now putting their theories to the test of every day life.

Certain groups of psychiatrists, on the other hand, have for a considerable period been struggling with raw human material, testing their theories at every turn by the actual changes produced or not produced in concrete behavior. It is not strange, therefore, that they have made revolutionary contributions to a new dynamic psychology which is based on modern biology and what it can tell us of behavior in lower forms of life. It is to this new psychology that we have to look for the solution of society's great mental hygiene problem. There is no other available. The academic psychology makes no difference to life and the older psychiatry holds before us only the finality of heredity and unalterable nervous structure.

Shall we, then, throw the burden of mental health upon the comparatively few psychiatrists and psychologists who understand this new psychology? Obviously this is impossible. Every family, rich or poor or middle class, has its mental hygiene problem and comparatively few of these problems are of so acute a nature as to lead them to the private office of the psychiatrist or to the mental clinic. And if they could all be induced to carry out such a program, psychiatrists, psychologists, and mental clinics would be hopelessly swamped. There are not enough psychiatrists or clinics to be more than a drop in the bucket when it comes to handling the problem of mental health for our young people. It is evident that others will have to take over the psychology which the psychiatrists have worked out and learn to use it before much will be done in improving environment and education for the nerotic or any other kind of girl.

I am not implying that we necessarily have to learn or practise any technic of psycho-analysis such as may be essential in curing the seriously maladjusted. I am talking only about a psychology of your human nature and mine, which is difficult solely because life is not simple, but which intelligent people ought to be able to grasp if they are capable at all of understanding their own mental processes. We all have the material, the proof of the theories as well as their substance within us. Should there be anything esoteric or mysterious about knowing the roots of our own behavior sufficiently to understand that of others, in order that what we attempt to do for them need not be so blind? We are bound to interfere with the lives of the young just by the mere fact of living with them and attempting to educate them. It is only a question of whether our contacts with youth shall be self-conscious and controlled. Must we leave psychological insight to be applied by the psychiatrist after the damage is done, or can we take over enough of it to prevent a large part of the damage?

The most difficult cases cease to be problem children when through behavior analysis and re-education they find a level to which they can adjust themselves. Plays of construction or of impersonation are of particular value.

The games at Seyhert Institution afford an unconscious expression of the personality of the child. The children are at all times fully occupied, and are always under observation to find the key to their maladjustment, and the psychologic moment for its correction.

Let us consider concretely the type of problem which is to be found over and over again in the life of the neurotic girl and see what social agency, institution, or professional group could be used to deal with these problems from a psychological

standpoint before they are so acute as to require the psychiatrist.

Resort to Mental Makeshifts

For the purpose of this paper, the neurotic girl is the girl who resists emotional maturity because every stage of growth demands additional effort to which she is unequal. The hold of the home, parental protection, infantile or childish dependence, and the childish methods by which she has satisfied her desires in the home situation have proved too easy, comfortable, and attractive. She will not or cannot without help meet the increasingly difficult problems of adult life on an adult basis; that is, seeing them as they actually are, and overcoming them by a practical and

The spontaneous reactions of children at play constitute the most fruitful field of study for the interpretative psychologist.

direct handling of the elements involved. She faces adult problems only by deceiving herself as to their real nature. She puts up a defense which is her way of meeting the situation. She protects herself from the truth by a make-believe adjustment. We may expect to find this breaking down of adjustment anywhere along the line of development of the ego instinct or the sex instinct and, accompanying it, a sense of inferiority in all kinds of disguises which is probably both cause and effect.

A real inferiority which the girl cannot accept, overcome, or compensate for may account for the clinging to childhood and the inability to put forth the effort required for growth. Repeated failure to adjust will then only increase the sense of inferiority. On the other hand, sneers, ridicule, or misjudgment of adults may prevent compensation for a natural inferiority and heighten the inability to face reality. Failure may also follow attempts to adjust to too difficult external circumstances, and produce a sense of inadequacy which again in a vicious circle discourages the effort to make new adjustment. The old infantile and childish methods of obtaining satisfaction, within the sheltering domain of the family, seems

Play activities are planned to promote normal reactions, and every effort is made to understand the mental needs of the child.

to the neurotic girl the safe sure way and, for fear of losing these valued-assured satisfactions, she hesitates to attempt to gain adult satisfactions that must be reached by perilous untried paths.

Social Worker Applies New Psychiatry

This girl whom we label neurotic is to be found everywhere; in the families of our friends, employed on our office staff, working in our kitchens, studying in our schools, being reformed in our reformatories, occupying the chairs in the doctor's waiting room, filling the case records of the Charity Organizing Society. She cannot be confined to any one class. What can we do with her practically in the immediate present. Of course, we know that the ultimate solution of the problem lies in educating the parents. The difficulties of the neurotic girl all go back to the home and relationships to father, mother, brothers, and sisters. If fathers and mothers understood and practised the new psychology, the millenium of the mental hygiene movement would have arrived. In the meantime, while we keep the home in mind as our final goal, what agencies outside the home can be used here and now to help the neurotic girl to grow up?

A comparatively recent movement in this country which has received a tremendous impulse from the war and which promises to be of untold value for any mental health program, is the coming together of psychiatry and social work in what is known as social psychiatry. Out of this has grown a new kind of social worker; at least she has a new name, the psychiatric social worker or the psychiatrist aide. Her place is in the parole department of a hospital for the insane, in the parole or out-patient department of a psychopathic hospital, and in the psychiatric clinic. She brings to this new field, a previously acquired technic in family case work, such as is used in

the Charity Organization Society. Social case work in the technical sense means not a giving of relief to the poor,—relief is only incidental and frequently detrimental to good case work,—but a method of assisting families and individuals in them to make more satisfactory social adjustments

Social Aides in Mental Clinic

You can see that the case worker has the same problem as the psychiatrist, the problem of finding some way to improve unsuitable behavior in the human being. The psychiatrist has approached the problem from the standpoint of the personality of the maladjusted individual, of the psychic factors, which unrecognized, have determined the particular form of maladjustment. The case worker, on the other hand, has tended to see the individual more as part of a family, a neighborhood, a city, a nation, and to interpret his maladjustment in terms of the effect of the social and economic environment upon him. The psychiatrist has sought to alter behavior through analysis and re-education of the entire mental life of the individual. The case worker has tried to change behavior through improving the physical, economic, and social conditions in which the individual has been living. The good case worker, like the good psychiatrist, has accomplished her results as far as possible through the aroused interest, intelligence, and initiative of the maladjusted individual himself.

The limitations of the two methods, the need of each for the other, is apparent and in their union in the social service department of the psychiatric clinic and hospital we have a powerful instrument for getting at the neurotic girl. The psychiatrist can use the social worker to multiply his usefulness and influence many times. She takes over from the psychiatrist the psychological interpretation of the case, which she lacked before, and, combining it with her knowledge of social conditions, is often able to bring about concrete results in the lives of clinic patients which neither she nor the psychiatrist could have accomplished alone. Remember, I am not talking about private practice, although it may be that even there the psychiatrist could use the social worker to advantage. I am talking about all those centers where the psychiatrist tries to handle large numbers of cases and cannot give to each the individual attention required. The chief hope for the class of girls who must use mental clinics because they can never afford to pay the psychiatrist for individual attention is thus far the social workers who, because they are more numerous, less specialized, and their time less valuable, can afford to go into the details of the girl's life outside, remove the worst obstructions, and patiently help her to understand the reasons for her difficulties.

A New Interest in Psycho-Analysis

The failure of the mental clinic thus socially equipped is that it will never at its best reach more than a limited social group, and of these usually only the more advanced and troublesome cases. However, this is not the whole story. Already a secondary result of this wave of social psychiatry has been felt which bids fair greatly to enlarge the field of influence of the new psychology. When the pressure of the war created a demand for case workers with a knowledge of psychology and mental disease, courses in social psychiatry sprang up in the training schools for social work in Boston, New York, and Philadelphia following the emergency summer course at Smith College in 1918, which has since become permanent. All this publicity about social psychiatry and the psychological or psychiatric approach, as well as the burden of training the students in these new courses in practical case work which fell quite heavily upon the Charity Organization Societies, opened the eyes of the ordinary case workers and of the regular training schools to the fact that practically every case work problem is psychological and, if the psychiatrist has anything in the way of a practical psychology, it is needed for every day use quite as much as for the clinic patient.

The workers already on the staff of the Charity Organization Society in New York and Philadelphia began to ask the training schools for courses which should give *them* a chance to learn the psychiatric method. The response to this demand was immediate. The New York school instituted a permanent department under Dr. Bernard Glueck. This department provides a seminar course to which the practising social worker can bring her case work problems for discussion. In Philadelphia the training school gave a six months lecture course in social psychiatry which was attended by the forty members of the Charity Organization Society staff and representatives of nearly every social agency in Philadelphia, and then instituted a permanent course under Dr. G. Stanley Abbot. Some one who reviews all of the case records of the Charity Organization Society in Philadelphia recently made the comment that nothing in the history of the Society had ever made such a change in the attitude of the workers as this influx of the new psychology. With Boston I am not so familiar, but I know that courses were given there and the

influence of the Psychopathic Hospital was greatly extended. The results of this awakening of social work, in the East at least, were seen clearly in the National Conference at Atlantic City. Mental hygiene, social psychiatry, the new psychology, swept through the conference. One heard it on every side.

Physicians Solve Social Factors

There is no doubt that from now on the case worker equipped with a better psychology is going to be a powerful instrument for straightening out the neurotic girl who is constantly appearing in her work. To her comes the girl who is a problem in the home because she will not attend school or is in constant trouble at school; the girl who finds the transition from school to work a crisis and is unconsciously evading economic independence, by losing her job repeatedly, finding something seriously wrong with every position she tries, or developing physical symptoms which keep her from working steadily; the girl who is just beginning to enter a career of delinquency, as a thief, or a sex offender. With this kind of girl, whom the psychiatrist has not time to treat, the case worker who has some understanding of the unconscious mechanisms back of her behavior, may make a genuine contribution to mental hygiene.

We must realize, however, the limited group thus reached. The case worker after all comes in contact with a comparatively few families and under present conditions her work is likely to be confined to families where poverty is a factor. There remains the large mass of the population, the average middle class as well as the wealthy, whose mental hygiene needs are equally pressing. With a single exception, it seems to me the physician in general practice is the most important and as yet comparatively the least used agent for conscious mental health in our social structure. Particularly is this true of the woman physician who is peculiarly fitted by inclination, interest, and the character of her patients for dealing with the problem of the neurotic girl. All that she needs is to have her attention diverted from the purely medical issues and awakened to the social and psychic factors in the illness of the neurotic and the possibility of doing something not merely palliative, but constructive, with this type of patient.

Because the neurotic girl always develops physical symptoms as critical situations are forced upon her, whatever her station in life, she is practically sure to find her way to the general practitioner and as there is often a question of some disorder involving the sex organs the physician selected is frequently a woman. The very fact that the girl seeks the help of the physician, that there is a concrete physical difficulty to discuss, that the physician is in the confidence of the girl and the family, and is often able to educate the family regarding the treatment of the girl, makes her position in the solving of this problem absolutely critical.

Complex Elements of Inadequacy

The woman physician can often help to loosen the hold of the neurotic father or mother blindly keeping their daughter attached to the home and making emotional maturity almost impossible for her. She can get at the unsatisfied sex life of the parents, unconsciously trying to compensate for its losses by exacting an extreme response in the love of the child. She can point out to the parents the need of the girl to become economically independent, no matter how well to do the home. Receiving as she usually does the complete confidence of the girl, she can easily and naturally point out the inferiority, real or imagined, which is at the bottom of the trouble, show the parents how their attitude toward the girl has reinforced her sense of inadequacy, and teach both girl and parents how the weak spot may be strengthened by facing it and slowly training it into efficiency; or how it may be compensated for by a strengthening along other lines and a simple acceptance of that particular defect.

I wonder how many of us realize unless it has come home to us in our own lives what a handicap a simple physical inferiority or belief in general physical inadequacy may become. I have in mind a girl whose physical make up was fairly adequate but as a very little child she was clumsy, pigeon-toed, and inclined to be afraid to use her body. Her parents laughed at her attempts to walk and run and at her frequent falls. They exaggerated her timidity and encouraged her not to try any unusual physical feats. There was no gymnasium work in the schools she attended. She grew very rapidly and at twelve was far too large and heavy for her age. Children called her fatty. Her mother said great big girls shouldn't run about like tomboys, but sit still and be lady-like. Her consciousness of her physical ineptitude increased to a painful extent. She took part in no sports or games that would betray her weakness. She was in deadly fear of walks, because there might be fences to climb. She dreaded the simple feat of climbing in and out of wagons. This lack of confidence extended to every part of her life. She was sure no man would ever care about her. She compensated in an over-development of intellectual interests, but even here she had not the

confidence that her ability warranted. Middle age finds this girl just beginning, through analysis of her own behavior, to get a legitimate self-confidence intellectually and socially and the free use of her own body, which wasn't particularly inferior after all. This particular girl had enough energy and ability in other lines to fight her way through her sense of physical inferiority; but what might such a handicap not do to the less hardy nature.

There is nothing in such a situation that could not be handled by anyone with interest and psychological insight. The woman physician meets just such inferiorities and many more subtle ones every day. The new psychology can save the energy wasted in concealing these inferiorities, and restore the individual to normal self-confidence and usefulness.

Mass Methods Must Fail

On the sex side of the resistance to maturity the woman physician undoubtedly can be of the greatest assistance in reconciling the neurotic girl to the idea of normal sexual development. I think we often make grave mistakes in our programs for sex education by confusing knowledge of the facts of sex with emotional adjustment to those facts in real life. We assume that the home, the friends, social opinion, and custom as the girl knows them have toward these facts the same wholesome sensible feeling that we who are giving the instruction have, or ought to have. We presuppose that the girl's social environment has done nothing but repress the facts, and all that is to be done is to see that she gets them simply and scientifically. The thing we overlook is that the environment has bred in the girl an emotional attitude toward the very facts it has concealed and that attitude is usually made up of horror, curiosity, disgust, and fear. To the girl with such an innate attitude, knowledge of the facts may only increase the horror and curiosity, and produce an added emotional resistance.

One of the most difficult girls in my experience was a Jewish girl of sixteen. She dressed, acted, and looked like a child of ten. Every effort was obviously toward the refuge of childhood. She had every kind of nervous symptom; jerked, twitched, became hysterical if upset. She would be unable to talk at all for an hour or more at a stretch. She ate in the most childish, erratic way, usually choosing milk, or ice cream, or sweets. When, after months of social supervision and removal from her home, she finally loosened up sufficiently to tell her story, it developed that she had been familiar with the ordinary expressions of sex from the age of four or five and had tried them all. Every conscious attitude toward it was conventional. Her disgust and horror were equalled only by the attraction it had for her. She had the physical and sexual development of a woman, but she clung fiercely to the idea of innocent childhood. Whenever her interest in sex got the better of her, as it frequently did, and she flirted with the elevator man or went out to Coney Island and let herself be kissed, the conflict between her two attitudes would result in an hysterical attack. She did not know anything about the scientific facts of sex and she did not want to. Once I tried to give her sex instruction. I talked to a deaf mind. A year later she asked me in a confused way if I had ever told her anything about such things.

Facts could mean nothing to such a girl. Only an emotional reconciliation between her own sexual needs and the kind of social morality with which she was familiar could have availed to save her. Her constitutional instability, the terrible home conditions, and the length to which her maladjustment had gone, made her case almost hopeless and yet there was about the girl something intelligent and fine which kept us working at her. She has managed to stay out of the hospital; she has learned to work a few weeks at a time; and she understands in a measure the character of her conflict. After two years, I met her, and was completely dumbfounded by the degree of insight she had acquired. It was then that she asked for and for the first time seemed to understand the plain facts of sex. She is not one of the hopeful cases and is very probably not worth the time we have spent on her, but she illustrates in exaggerated form the kind of conflict that the woman physician can help settle for the neurotic girl, by virtue not so much of her knowledge as of her own emotional adjustment to sex.

The moral of this tale is that teaching sex by the mass method is a doubtful procedure if it cannot be followed up by the most careful individual help to the girl who has a problem. The safest way is to give the essentials of sex, with no special emphasis, in the natural place in school, either in biology or physiology. Then the case work method must be used to meet the emotional conflicts, and nine times out of ten the woman physician will be the one who has the opportunity to help make the adjustment.

Mental Hygiene in Public Schools

There is one last agency for the salvation of the neurotic girl still to be considered. It is the most important and the most unprepared for the task of any except the home. The school reaches practically every child and does its part in deepening or lessening the neurotic tendencies. At

present we are safe in assuming that for the most part it deepens these tendencies. It drives the neurotic child into truancy, vagrancy, anarchy, invalidism, and every form of delinquency; or hardens its emotional reactions into permanent moods and it does all of this without in the least being aware of it. I do not doubt that there are many good schools and good teachers, but for the most part they are intuitively good, not consciously so, and in our large cities where the tremendous flood of children almost overflows the machinery, the necessity for an ironclad system to make things go at all tends to kill any enlightenment the principals and teachers may possess.

If our public schools really educated, if they understood that education involves a training of the instinctive and emotional life as well as of the intellect, if they saw that they cannot even develop intellect as long as they ignore desire, we should have an agency for adjusting the neurotic girl and boy second only to the home in its power. There is proof for this statement. Enlightenment is coming into education in spots. There are visiting teachers who work on the problem children in a school and get wonderful results. There are experimental schools whose methods are based on an understanding of the new psychology as it applies to educational theory. These schools are able to deal with the able but neurotic child who cannot get along in the public school. Those of us who work with difficult children are defeated constantly not so much by the impossibility of the cases as by the impossibility of finding any public school that understands or has time to act on its understanding. I am constantly trying to straighten out the children the public school can't handle. Our school[1] is not primarily educational but is a place to observe and get acquainted with difficult, dependent, or destitute children whom the various children's agencies of Philadelphia are trying to place satisfactorily in homes. They are children who do not get along anywhere. Nobody wants them because they are so hard to manage. The thing that constantly surprises us is how easy it is to change their behavior. They are not set like adults; and a little understanding, a little insight, and patience, a mere approach to real educational methods, often gives immediate results that are almost like magic.

May I tell you about Nick? Nick is an Italian boy of twelve; he lives in an Italian neighborhood and speaks only Italian at home. His mother is a good soul but utterly foreign and untouched by American ways. This makes her inferior in Nick's eyes. His ideal is the American way of doing things. Nick adores his mother but tyrannizes over her, and her only method of controlling him is to scold, nag, and cry. She is powerless against the forces that have taken hold of Nick. Nick is a real person, a born leader, with charm and force. At school Nick has to go in classes with little boys because he hasn't mastered the English. He doesn't understand what is said half the time but will not admit it. English is like a barrier between him and school. He is always in a position of inferiority and he hates school in consequence. Nick is too aggressive a person to accept this. He plays truant and exercises his power where he can be superior in use of his fists with a gang of boys, in carrying out mischief. Here he can feel comfortably powerful and at home. The more delinquent Nick becomes, the more his mother threatens to put him away. Nick is terrified at this idea and is afraid of every strange person who comes to the house. He is hardly ever at home, but runs loose like a hunted thing. The social worker tried to get him to our school. He refused to come,—resisting every persuasion in blind fear. Finally, we went with an auto early enough in the morning to find Nick still in bed and, making a virtue of what might become a necessity, he reluctantly consented to come.

Instincts Subject to Training

From the moment Nick got acquainted with us there has been a growing change in attitude. We did not begin trying to make Nick study out of books, but we admired greatly his successes with clay and reed. We did not say too much about his tendency to knock down whatever happened to be in his way, often some small unoffending youngster. At the mention of a book or lesson Nick shied like a young colt. We bided our time and put all the emphasis on achievement in hand work and interest in nature. Soon Nick's desire for superiority began to be a little appeased by his successes and he used fists less and began to pine for new fields to conquer. He became interested in stories and pictures. Inadvertently he got so interested one day he tried to read. We seized the psychological moment and praised his efforts. He was told that he could do just as well with his head as with his hands if he had the patience. Ever since Nick has plugged away on books. His absorbing interest in making things has been transferred to book learning for the time being. Nick is apparently a reformed character, but we don't dare send him back to public school because they would not understand or make any allowance for Nick's need to succeed.

Russell is a boy who is timid physically, the

1. Seybert School for Child Study, Philadelphia, which is associated with the Children's Bureau and the Temporary Shelter of Philadelphia.

butt of the other boys, and I suspect, inferior intellectually. He seems to have compensated for his weakness by developing a vocabulary whose foulness is exceeded only by its variety. He dares to call anyone from the teacher down any name he can think of and for the joy of exercising this power he endures the beatings given by the other boys. Russell shuns everything approaching school work. The very sight of a school room calls forth streams of abuse and threats of violence. To get along with Russell you have to be infinitely patient and perfectly indifferent until his own curiosity overcomes his resistances. Once we can find something Russell can do well, a chance to approve of him without arousing his suspicious antagonism, we think we can manage him. In the meantime, we let him wander around by himself and we ignore his language. One success has been achieved. The third day at school Russell worked on a basket for several hours at a stretch. We are just waiting.

Many such children, who make up our incorrigibles, could be saved by the public school. It would mean teachers with a new psychology; it would mean more time to each individual child; it would mean small classes, more buildings, more teachers, and a great deal more money; but in the long run it would save money as well as children. The attention has to be given to neurotic children some time. They make us pay for refusing it earlier, by exacting it later, in our many institutions, in ruined homes, in wasted lives, and squandered energy.

There is surely no program for social betterment which is so worth a life time of effort and interest on the part of the medical profession as a mental hygiene program which has for its goal the use of the public school system to develop the child, neurotic or normal, into the best adjusted human being that he is capable of becoming.

TO DIRECT RED CROSS WORK

Dr. H. C. Garwood, associate superintendent of the Pittsburgh city schools, has been appointed European director for the junior Red Cross, succeeding Major Royal S. Haynes, and will sail early next year for Paris headquarters. The after-war program of the children's organization includes relief and rehabilitation work.

FILLING IN THE GAPS OF CHILD LIFE

Child welfare work in New York directed especially toward the control of the appalling loss of infant life in the colored districts of New York is reported in *The Survey* of December 27, 1919. Two great needs are emphasized: the need of adequate facilities for the treatment of defects, and the need of thorough medical examination and diagnosis for the pre-school child. Great gains have been made in linking up the community with every facility provided, but facilities for the treatment of nose and throat troubles are notoriously inadequate and so widely scattered as to be difficult to reach. The problem of defective nutrition is met through nutrition classes for the correction of the food habits of the children. The nutrition classes are supplemented by work with the mothers with practical demonstrations in the preparation of foods beneficial to the children.

WOMEN SEEK CAREERS IN SCHOOL OF OCCUPATIONAL THERAPY

By MARGERET NEALL, Secretary, Philadelphia School of Occupational Therapy, Philadelphia

The Philadelphia School of Occupational Therapy was founded by the National League for Women's Service in the summer of 1918. As its object was primarily patriotic service, it was financed for its first year by the War Chest, two classes being graduated during the year. These four-months courses trained about fifty women to carry on the work in military and civil hospitals. Two art schools of the city offered the use of their class rooms and faculty as a war service, the first class dividing its time between the School of Design for Women, and the School of Industrial Art, the second class being concentrated entirely at the former. Its success, as measured by the constantly increasing demand for its graduates, a demand that far exceeded the supply, warranted a building of its own, so a suitable house has been obtained and all classes are now held under one roof. The present location of the school is in a desirable residence portion of the city. Special attention has been paid to making the working conditions not only healthful, but attractive. The small garden at the back of the house is under the care of the Society of Little Gardens, and many plans are on foot for its development next spring. A committee of students, working under the House Committee, arranges a hot lunch, which is served daily in the school. The class is a self-governing body, conforming to the general rules of the school.

Products of Occupational therapeutic work from the Philadelphia School of Occupational Therapy. Short of actual drudgery, the patients do better when occupied on useful products. The work must interest them, and must bear a definite relation to the disability it is calculated to correct.

Students from out of town are helped and advised in their choice of boarding places. Graduates are encouraged to keep in touch with the Dean, and to confer with her when changing positions. In this way she has already been able to place in civil work those whose terms in the military hospitals have expired.

Since this is the period of adjusting the military use of

Occupational Therapy to the needs of those industrially handicapped, the course has been kept as flexible as possible, and is constantly being broadened to meet the new conditions. The members of the faculty keep in intimate touch with the needs of hospitals and sanatoriums, and the good equipment makes technical development possible. The class rooms are bright, well ventilated, and cheerful.

Students from the Philadelphia School of Occupational Therapy instructing patients at the Pennsylvania Hospital for Nervous Diseases.

The first and second classes, owing to the war necessity, received the most intensive training consistent with efficiency. The hospital practice, lectures, and craft work were condensed into four months. The course under present conditions takes eight months, and several additions have been made to the curriculum. To its therapeutic side has been added a course in anatomy and kinesiology, and to the occupational side, work in leather and cement.

As suitable personality plays such an important part in the success of an occupational aide, the Directors reserve the right to refuse admission to any applicant, or to grant admission only on probation. Applicants for the course must be at least nineteen years of age, while those over thirty must show special ability, or some special accomplishment. No applicant is accepted without a physical examination by the physician of the school.

Workers Fully Accredited

A student successfully completing the course receives a certificate, and, although the School does not guarantee positions to its graduates, so far the demand for aides has been far in advance of the supply. At the present writing, applications for aides are on file from four hospitals and sanatoriums, and another hospital has notified the Dean of its need in the near future. Graduates of the school are now doing splendid pioneer work in developing departments of occupational therapy in the state sanatoriums for tuberculosis, its introduction into these institutions having been ordered by the State Commissioner of Health, Colonel Martin. Its influence upon the morale of these sanatoriums has been felt immediately, even by those who were most skeptical of its benefits.

The regular course includes hospital practice, lectures, and craft work; and we have been asked to arrange special classes to accommodate nurses who wish to add occupational therapy to their equipment in caring for the sick.

The cooperation of two of the leading hospitals in Philadelphia, the Philadelphia General Hospital and the Pennsylvania Hospital for the Insane, has insured the best hospital training. Under expert guidance the pupils of the school apply the theories of the class rooms in the wards and workshops of the hospitals. In this way they gain practical experience in teaching, and at the same time prove their ability for the work.

The lectures are given by well known specialists in the subjects treated, and a quizz at frequent intervals tests the standing and understanding of the students. The subjects of the regular course of lectures for 1919-1920 are as follows, with special lectures at varying intervals:

History of occupational therapy..Dr. Thaddeus Bolton
Consciousness and interest.....Dr. Thaddeus Bolton
Formation of habits.....Dr. Thaddeus Bolton
Treatment of defective speech....Dr. E. B. Twitmyer
Speech reading.....Miss Cora Kinzie
Mental diagnosis.....Dr. Thaddeus Bolton
Tuberculosis .....Dr. A. C. Morgan
Hospital etiquette.....Miss S. L. Clayton
Use of occupation in psychosis.....Dr. D. H. Fuller
Hysteria .....Dr. Thaddeus Bolton
Mental defects..... Dr. Owen Copp
Anatomy and kinesiology.....Dr. Thaddeus Bolton

Occupation Adapted to Need

Teachers who are specialists in the various lines direct the work in crafts. Much stress is laid on the fact that different disabilities are helped by different crafts. Classes include: (1) Weaving, hand, treadle, and cardboard loom. (2) Pottery, modelling, and cement work, toys in plaster. (3) Carving, wood construction, toy making. (4) Basketry, reed and raffia, chair caning. (5) Cord knotting, lace making, bead work, braided and hooked rugs, rake knitting. (6) Elementary bookbinding, cardboard and paper construction.

The hours are from nine until four, and the tuition fee for the whole course is one hundred dollars. Special arrangements are made to meet the requirements of special students, and, in learning any craft, the student is trained to think of it in the therapeutic as well as technical terms.

The following is a list of partial courses furnished by the school:

(1) Hospital practice, lectures, and some uncompleted crafts. Fee according to time for tuition.

(2) Hospital practice and lectures. Fee twenty-five dollars. Applicants must be accepted by Personnel Committee and pass a physical examination by the physician of the school. Must show certificate of work in crafts satisfactory to the faculty in order to be excused for crafts work. Certificate awarded to students satisfactorily completing the required course.

(3) Lectures. Fee fifteen dollars. Permission to attend must be obtained from Dean and faculty. No certificate given.

A small exhibit of student's work was sent to the annual conference of the Society for the Promotion of Occupational Therapy, held in Chicago last September, and later to a meeting of the State Federation of Pennsylvania Women at Scranton. The large exhibition of all the successful work of the students was held at the Art Alliance, and was then displayed by John Wanamaker in one of his show windows on Chestnut Street, where it attracted a great deal of attention.

The Board of Directors feels that this school supplies an ever increasing need in civil life. Not only the the hospitals and sanatoriums requesting aides, but demands come in for teachers of handicapped adults or children

who are not in institutions. Thus another field of usefulness is opened, that of the visiting aide.

Altogether, the outlook is a most inspiring one for the woman who is especially fitted for the work, and the school hopes thus to preserve one of the benefits left after the distress of war.

LAW FOR THE DOCTOR*

By LESLIE CHILDS, Attorney At Law, Indianapolis, Ind.

Validity of Contract to Furnish Patient Medical Services for Life

A careful search of the books discloses but two cases involving the legality of an agreement, between a physician and his patient, by which the former agreed to render medical services to the latter for life. The first is an English case, Dent *vs.* Bennett, 7 Sim. 539, decided about 1838, in which it was held that such a contract was void, as against good public policy. The reasons for this conclusion were stated by the vice-chancellor in the following language:

"It is plain that the existence of such an agreement is a direct premium to the medical adviser to accelerate that death upon the happening of which he is to have £25,000, and it is in vain to say that in fact it did happen that the party who was to give the £25,000 did live four or five years after the agreement.

"You must look at the agreement as it stood at the time it was made; and it must be admitted that the human mind is so constituted as that this agreement might be a temptation to some persons to do the very thing which it is obvious it was the duty of the party who took the agreement not to do; and my deliberate opinion is that it is totally void in point of law for that reason."

The second case referred to was the American case of Zeigler *vs.* Illinois Trust & Saving Bank Exr., 245 Ill. 180, decided in 1910, nearly a hundred years later, which may in a measure account for the opposite views entertained by the two courts. Though in justice to the earlier court, it may be said that the evidence of the claimant's good faith was not nearly so convincing, nor were his hands comparably as clean as were his prototype's in the Ziegler case in the following century.

The facts in the Zeigler case were substantially as follows: Dr. Zeigler, a practising physician and surgeon, in the city of Chicago, was employed professionally by Mrs. McVicker sometime during the fall of 1899. A few months later a contract was entered into between them in which it was stipulated that Dr. Zeigler was to be paid $100,000 out of her estate after her death; the consideration being that Dr. Zeigler should give her such medical attention as she should require during the remainder of her lifetime. At this time Mrs. McVicker was 78 or 79 years old. About five years later she died, at Pasadena, Calif., and, when the doctor attempted to enforce the contract, it was disputed by the executor of the McVicker estate.

Suit was filed on the contract; a judgment for the $100,000 was given the doctor in the Circuit Court; this was reversed in the Appellate Court, and the case was afterward taken to the Supreme Court for final adjudication.

The evidence was undisputed that the contract had been openly entered into after Mrs. McVicker had consulted a number of her friends; in fact, it showed that she had insisted upon the contract in the first place; that it was her idea; that she was a woman of education and culture, owning large property interests which she personally managed and supervised; in fact, an exceptionally shrewd woman.

It was also shown that the doctor attended her constantly during the period of the contract; giving her the right to his attention at all times to the exclusion of his other patients. In summing up, the Supreme Court said in part:

"It is urged that this contract is void chiefly for the reason that it furnishes an incentive to appellant (the doctor) to shorten the life of Mrs. McVicker by neglect, or improper treatment, or by the commission of the crime of murder. Each argument made by appellee (the executor) in support of this contention involves a breach of the contract, and is not founded upon the performance of it. It cannot be seriously contended but that, in order to comply with the terms of this contract and be entitled to receive the benefits of it, the appellant (the doctor) was bound to give Mrs. McVicker the best treatment within his power and skill, and to prolong her life as long as possible. There can be no doubt that a contract to commit murder or any other crime, is void, as against public policy. This contract does not contemplate the commission of a crime, or the doing of anything which is unlawful or contrary to good public morals. Even if it be conceded that the contract, under its terms, offered some incentive to appellant (the doctor) to commit a crime, that would not necessarily render it void."

Thereupon the Supreme Court reversed the Appellate Court, affirming the judgment of the Circuit Court. Holding that the contract was valid and binding, and that as the doctor had fulfilled his part of the contract he was entitled to the consideration, namely, the $100,000.

*The tenth of a series of articles on "Law for the Doctor" written for MODERN MEDICINE by Leslie Childs.

NEW YORK MEDICAL SOCIETY PRESENTS HEALTH INSURANCE REPORTS

The majority and minority reports of the Committee of the House of Delegates of the Medical Society of the State of New York, which was appointed in May, 1919, to study the subject of health insurance legislation, have been submitted. The reports are published in full below:

MAJORITY REPORT

At a meeting of the House of Delegates of the Medical Society of the State of New York, held in Syracuse, May 5, 1919, in compliance with the recommendations of President Halsted,

That before taking final action, the subject of compulsory health insurance be referred to this Body to a committee to study it with special reference to its relationship to the medical profession, and report back to a special meeting of the House of Delegates to be called in the fall before the next meeting of the Legislature,

the following resolution was passed by the House of Delegates:

In regard to that portion of the President's report having to do with the Donohue-Davenport Bill, we approve and advise the adoption of the recommendation made in supplementary report to the end that there be appointed a special committee named by the President to study the subject and report back to a special meeting of the House of Delegates, to be called this autumn before the next meeting of the Legislature.

The following is the Committee appointed by President Thomas H. Halsted: Harvey R. Gaylord, chairman, Buffalo; Grant C. Madill, incoming president, Ogdensburg; Thomas H. Halsted, retiring president, Syracuse; Joseph B. Hulett, president, First District Branch, Middletown; Frederick C. Holden, president, Second District

Branch, Brooklyn; Luther Emerick, president, Third District Branch, Saugerties; Thomas A. Rogers, president, Fourth District Branch, Plattsburg; G. Massillon Lewis, president, Fifth District Branch, Vernon; R. Paul Higgins, president, Sixth District Branch, Cortland; John H. Pratt, president, Seventh District Branch, Manchester; Albert T. Lytle, president, Eighth District Branch, Buffalo; J. Richard Kevin, chairman, Committee on Legislation, Brooklyn; Henry L. Winter, chairman, Committee on Medical Economics, Cornwall; Arthur W. Booth, member, State Board of Medical Examiners, Elmira; George W. Kosmak, chairman, Committee on Legislation, Medical Society, County of New York, New York; John A. Lee, chairman, Committee on Legislation, Medical Society, County of Kings, Brooklyn; James F. Rooney, chairman, Committee on Legislation, Medical Society, County of Albany, Albany; Walter H. Kidder, secretary, Medical Society, County of Oswego, Oswego.

The incoming president, Grant C. Madill, added to the Committee Sigismund S. Goldwater, medical director, Mount Sinai Hospital, New York.

Your Committee met at Atlantic City on June 10, 11, and 12; at Brooklyn on July 26; at Buffalo on September 3; and at Utica on November 9; and numerous meetings of sub-committees were also held. The members of the Committee have given good attendance, although two members have not attended any meeting.

Your Committee would like to offer the following brief résumé of the subject of its study before stating its recommendations:

The essential components of all compulsory health insurance schemes are two: (1) the provision of a cash indemnity during a relatively brief period of incapacity to labor due to illness; (2) the provision to the insured and their dependents during a determinate time of so-called medical benefits which comprise medical, dental, and nursing attendance, hospital and sanatorium accommodations, maternity attendance, drugs, and all necessary medical and surgical supplies.

The proponents of this legislation rest their demand for the institution of this scheme in America upon two main allegations: (1) that a very large amount of poverty is due to illness causing consequent unemployment and loss of income; (2) that a vast amount of the population receives inadequate and insufficient medical attendance; that is, that medical attendance is grossly deficient both as to quantity and quality.

With the general features of the measures proposed for the legislative enactment of the compulsory health insurance scheme in this state your Committee will deal only in the briefest manner; the matter is familiar to you. It is proposed to establish an administrative machinery radiating downward from a division of the State Industrial Commission composed of a certain number of commissioners appointed by the Governor who in turn appoint a chief of the bureau of health insurance. Subordinate to the Commission and acting under regulations made by the Commission function the boards of directors of the local funds composed of three members elected by the employer members of the local fund, three elected by the employees and one additional elected by these six. All the affairs of the funds are administered locally by these boards of directors. Each local fund employs a medical officer who is not permitted to practise and who is practically the medical supervisor of the administration of the benefits of the Act. The medical profession is not represented upon any executive body under the proposed law, but is permitted to function solely through advisory committees, local and state. Its sole statutory representative has an administrative, not an executive function.

After consideration of the evidence put forward by the proponents of this legislation in support of their statement that a large proportion of the poor have been impoverished through unemployment caused by illness, your Committee finds that none of this evidence is unimpugnable and that it rests upon largely *a priori* reasoning. The preponderance of evidence is against the fact that any considerable amount of impoverishment is caused by illness; moreover, in those cases where impoverishment is caused by illness, it is due to the long enduring disability preceding death occurring in the chronic diseases, especially tuberculosis, chronic heart disease, cancer, chronic joint infections, renal and vascular disease which cause a disability long exceeding the period of twenty-six weeks during which the insured is entitled to benefits under the scheme. The statistics of the Labor Bureau of New York state show that in the main disability from all causes, including accident, injury, and illness, is the source of, on the average, only 5.7 per cent of unemployment, about the same amount as that caused by weather conditions (5.6 per cent), or a little less than half that caused by labor disputes (10.6 per cent), or one-thirteenth that due to lack of work (74.6 per cent). A survey entitled "Poverty in Baltimore and Its Causes; Study of Social Statistics in the City of Baltimore," by the Alliance of Charitable and Social Agencies, McCoy Hall, Baltimore, Md., November 15, 1918, gives strong evidence of the small part illness plays in the cause of poverty; moreover, it evidences strikingly the fact heretofore stated as to the relationship of prolonged disability not covered in any scheme for health insurance to the relatively few cases of impoverishment due to sickness. Your committee would find, therefore, that short illnesses causing ephemeral disability bear no relation to poverty; that where impoverishment is caused by illness it is in all instances due to long continued disability; and that illness is but a very minor cause of unemployment as compared even to the conditions of the weather or labor disputes.

Your Committee is unable to find any available evidence that will bear inspection proving that, in the main, medical attendance in this state is grossly deficient in quantity or grossly defective in quality. If these facts were true it is unable to satisfy itself that the people of this state would receive a larger and closer degree of medical attention where one physician may care for either two thousand or more patients, as permitted under this scheme, than they now receive where the proportion of physicians to population is about as one is to seven hundred eighty. Moreover, your Committee is satisfied that the quality of medical attention would no more be benefited in the United States than it has in Germany, Austria, and Great Britain, by the conversion of medical practice from its present plan into an enormous scheme wherein the practitioner would be employed from year to year under contract, and in the final analysis subject to lay dictation as to means and methods of practice.

Your Committee feels very strongly that the inquisitorial powers which would be conferred upon the State Industrial Commission and its agents, and upon the local boards of directors, must be considered in its effect upon the public health, and especially as to the rôle it might assume in submerging and nullifying the activities of the present State Department of Health which has played so large a part in the reduction of morbidity and mortality by means of preventive, not palliative, medicine.

There is no uncertainty about the evidence that the relative morbidity rate, mortality rate, infant mortality rate, and maternal mortality rate, have been much more

materially reduced in the United States during the past twenty years than they have been in Germany and Austria where compulsory health insurance not alone, but the whole scheme, including invalidity and unemployment insurance and old age pensions, have been in force. It can, therefore, be seen that compulsory health insurance . . . has been of extremely little value, medically, in those countries; while it has been the cause of a profound deterioration in medical service and medical morale. Even in England, where it has been in operation for a comparatively short time, it has proved so defective and ineffective for the purposes for which it was instituted that it is now proposed to inaugurate the plan of state medicine to supplant it.

Your Committee, therefore, finds:

First.—There is no necessity for the institution of a scheme covering the major portion of the population of the state providing for the institution of contract medical practice on a colossal scale in order to furnish medical attendance and other services.

Second.—In those countries where this scheme has been in operation for many years, it has caused a deterioration in medical morale and medical service and its effect in this state would be the same, that is, a lessening in the quality of medical service.

Third.—In comparison with those countries where this scheme has been in operation the United States shows a more marked reduction in mortality rate, both general and as affecting maternal and infantile mortality rate. Apparently the morbidity rate under the scheme has doubled instead of being diminished in Germany and Austria since the institution of the social insurance plan.

Fourth.—There is danger of the scheme gradually undermining the functions so extremely valuable to the community at present subserved by the State Department of Health.

Fifth.—Owing to the paucity of accurate and unimpeachable data collected by means of an unbiased investigation, your Committee recommends that the Legislature of 1920 be requested to appropriate a sufficient sum of money for the use of the Health Department, and such other departments in association with it, as it requires, for the purpose of making a survey of the state of New York to determine the amount and character of illness in its economical relation to the commonwealth.

Sixth.—If additional legislation is to be enacted, it should provide for a greater development of existing agencies for preventive medicine, together with the extension on a large scale of the present county and municipal functions for both preventive and remedial medicine, and it should make further provision for the inauguration of more widely extended utilization of the present institutional clinical facilities for the diagnosis and treatment of disease, in order to facilitate the access of the entire population of the state to modern methods in the practice of medicine.

Your Committee, therefore, recommends that the House of Delegates, and, through them, the Medical Society of the State of New York, unqualifiedly oppose the enactment by the Legislature of the State of New York of any law instituting a system of compulsory insurance against sickness because of its menace to the public health of the state.

This report, acquiesced in by a majority of the whole Committee, is the result of a meeting held in Utica, New York, November 9, 1919, at which time twelve members of the Committee were present.

ALBERT T. LYTLE,
Secretary for the Committee.

MINORITY REPORT[1]

TO THE HOUSE OF DELEGATES OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK:—

The undersigned is unable to agree with the majority report of the Committee to study the subject of compulsory health insurance with special reference to its relationship to the medical profession.

For the sake of brevity and directness, the essential matter of the present report is presented in the form of a series of resolutions, setting forth certain guiding principles which were formulated after a careful study of the subject assigned to the Committee. In what follows, members of the Committee will recognize principles which were adopted, nearly all of them without a single dissenting vote, at a meeting of the Committee held in Brooklyn on Saturday, July 26, 1919, fifteen members of the Committee being present and voting.

(1) Unless the great mass of the population, including workers and their dependents, are brought within the scope of the proposed Health Insurance Law, no material improvement can be effected in the organization of the medical profession, nor can the benefits of medical science be more widely and satisfactorily applied than by means now available. This Committee, therefore, holds that the insurance funds must furnish surgical, medical, and nursing attendance, and the prescribed treatment, not only to insured persons, but to the dependent members of their families.

(2) Believing that the rural population now receives inadequate medical attention, we recommend that agricultural laborers be definitely included among the compulsory insured.

(3) Domestic servants should be included among the insured.

(4) No health insurance plan can be regarded as satisfactory which does not make available for the insured persons an improved grade of medical service, including the services of competent consultants and specialists; specific provision should be made for consultants, and consultant services should be organized in some form of group diagnostic clinics.

(5) Hospital maintenance should be distinguished from medical attendance in hospitals; that it, the insurance firms should not be permitted to make inclusive arrangements with hospitals for maintenance plus medical services, but hospital maintenance and medical service in hospitals should be treated as separate items.

(6) It is essential that any health insurance bill should provide for payment for professional services in proportion to the service rendered.

(7) The capitation system of payment is opposed.

(8) The employment, by funds operating under any health insurance law, of attending physicians or surgeons on salary is opposed; there should be a single system and principle of payment applicable to all insured persons, whatever the character or kind of fund in which the insured persons may happen to be insured.

(9) The health insurance bills heretofore presented to the legislature have failed to provide for such an organization of the medical profesion as would make the voice of the profession effective in negotiating rates with the funds; in the opinion of the Committee, the most promising form of organization for this purpose is one in which the whole body of legally qualified practitioners in the state would have representation and voice.

1. Owing to an error, this Minority Report was not presented to the meeting of the House of Delegates, and does not appear in the minutes of the meeting.

(10) Provision should be made for dental, nursing, and laboratory service for the insured and for the dependent members of their families.

(11) In making provision for laboratory and research work insurance funds should deal with health departments as far as possible.

(12) Free choice among all legally qualified physicians and surgeons practising in the state, should be granted to the insured.

(13) Physicians practising under any health insurance law should have the privilege of refusing to care for an insured person.

(14) Rates of compensation for medical services should be readjusted at intervals not greater than twelve months.

(15) The participation of commercial or profit making insurance companies in health insurance under any state health insurance law is opposed.

(16) Funds should provide maternity care for insured women and for the wives of insured men.

(17) Fees for obstetric services hould not be fixed by law.

(18) The use of the word "panel" to describe physicians rendering service under a health insurance law, thereby distinguishing and segregating certain practitioners or groups of practitioners is objectionable; in place of the word "panel" there should be some other appropriate designation for the group of reputable and qualified physicians who may elect to practise under the law.

(19) Except with the special consent of the State Insurance Commission, no physician in general practice should at any time undertake the care or treatment of more than 500 insured persons with the dependent members of their families, unless it can be shown that there is not a sufficient number of practitioners in the district to provide one physician for each 500 families.

(20) For the purpose of facilitating the careful and deliberate organization of medical practice under any health insurance law, a period of not less than eighteen months should be permitted to elapse between the passing of the Act and the time of its enforcement.

(21) No medical officer employed by a fund for the determination of sick benefit allowances should be permitted to practise medicine in any capacity under the law.

(22) The qualifications of the medical officers of the funds should be prescribed by the state Civil Service Commission.

(23) Two additional State Industrial Commissioners, both reputable physicians, should be appointed for the purpose of administering any health insurance law.

(24) The Board of Directors of the several funds should consist of equal numbers representing the employers and the employees, and at least one additional director who should be a physician, and who should be chosen by a majority of the directors.

(25) There should be in all districts a medical office building to serve as a center where general practitioners and the specialists engaged in the treatment of ambulatory (insured) patients can do their work; these buildings should contain the proposed diagnostic clinics.

(26) It is proper that the state contribute a fixed percentage of the total cost of administering the proposed compulsory health insurance law.

The undersigned believes that the demand for the distribution of the burdens arising from sickness cannot and should not be suppressed and that the demand for a wider application of the benefits of medical science is justified, and favors carefully considered legislation with these objects in view.

It is believed that the medical profession can perform a more valuable public service by earnestly assisting in framing a sound health insurance law than by merely opposing the enactment of proposed measures which are not satisfactory.

The adoption by the House of Delegates of the above principles, to which fifteen members of the Committee, on July 28, 1919, gave their assent, is respectfully suggested as a measure in keeping with the best traditions of the medical profession.

Respectfully submitted,

S. S. GOLDWATER, M.D.,

New York, November 16, 1919.

Appendix: Comments on Majority Report

The instructions of the Committee appointed to study the question of compulsory health insurance were "to study the subject of health insurance with special reference to its relationship to the medical profession and to report back to a special meeting of the House of Delegates." Although the majority report does not strictly confine itself to the assigned topic, it seems proper here to follow the general direction of that report.

According to the majortiy report,

The essential components of all compulsory health insurance schemes are two, *viz*:—the provision of a cash indemnity during a relatively brief period of incapacity to labor due to illness; secondly, the provision to the insured and their dependents during a determinate time of so-called medical benefits which comprise medical, dental, and nursing attendance, hospital and sanatorium accommodations, maternity attendance, drugs, and all necessary medical and surgical supplies.

"The proponents of this legislation" *i.e.*, compulsory health insurance legislation, says the majority report, "rest their demand for the institution of this scheme in America upon two main allegations: (1) that a very large amount of poverty is due to illness causing consequent unemployment and loss of income; (2) that a vast amount of the population receives inadequate and insufficient medical attendance, that is, that medical attendance is grossly deficient both as to quantity and quality.

The majority report in discussing the relation between sickness and poverty makes the sweeping statement that: "The preponderance of evidence is against the fact that any considerable amount of impoverishment is caused by illness," and refers to a single local survey in Baltimore. As to the relation of disease to poverty, in New York state, the following actual experience of organizations engaged in the relief of poverty in this state is offered in evidence:

In New York the Charity Organization Society stated in 1916 that 37 per cent of the families assisted by it were dependent because their wage earners were disabled by sickness.

The Association for Relieving the Condition of the Poor states in its report for 1918 that, "It is increasingly being realized that at the root of most necessities for relief is a health condition, or more accurately a lack of health condition."

The Buffalo Charity Organization Society reports that "sickness is more serious in our work for the poor than anything else." Numerically, it is the most important cause for relief. Relief organizations in Utica and other cities of the state duplicate this experience.

The New York State Board of Charities states in its report for 1918 that, "A study of the causes of dependency reveals the fact that much of it is due to sickness. It has been estimated that the sickness of workingmen, with the consequent expense of medical treatment and loss of pay, is responsible for more than six times the amount of dependency caused by industrial accidents. . . . A large amount of the funds contributed by private charities for the care of families in their homes

is made necessary because of sickness. Studies of charitable work have made the proportion more than 50 per cent."

The official commissions appointed to investigate health insurance which have gone into the matter most carefully have reported similiar conditions in their states after official investigation—such as the majority urges should be made in order to establish these and other facts.

The majority's statement that "illness is but a very minor cause of unemployment as compared even to the conditions of the weather or labor disputes" tells rather heavily against labor disputes and the weather, but can hardly be considered seriously as an argument against compulsory health insurance.

The argument that "where impoverishment is caused by illness, it is due to long enduring disability" may be advanced logically by those who desire more liberal insurance features than have generally been suggested by the proponents of compulsory health insurance who recommend that cash benefits should be paid for a period not greater than twenty-six weeks in any one year. Such an argument has, however, no weight against the principle of distributing the burdens that spring from illness.

The majority states in its report of November that it has been "unable to find any available evidence that will bear inspection proving that, in the main, medical attendance in this state is grossly deficient in quantity or grossly defective in quality." The majority continues,

If these facts were true, it is unable to satisfy itself that the people of this state would receive a larger and closer degree of medical attendance where one physician may care for either two thousand or more patients as permitted under the scheme than they now receive where the proportion of physicians to population is about as one is to seven hundred eighty.

But on July 26, the Committee adopted the following resolutions:

Unless the great mass of the population, including workers and their dependents, are brought within the scope of the proposed health insurance law, no material improvement can be effected in the organization of the medical profession, nor can the benefits of medical science be more widely and satisfactorily applied than by means now available. This Committee therefore holds that the insurance fund must furnish surgical, medical, and nursing attendance, and the prescribed treatment not only to insured persons but to the dependent members of their families.

Believing that the rural population now receives inadequate medical attention, we recommend that agricultural laborers be definitely included among the compulsorily insured.

In support of the inadequate medical care mentioned the second resolution of last July, the data gathered by the Committee on Social Insurance of the American Medical Association and by state authorities may be cited. This investigation found that while in the Borough of Manhattan there were 418 persons for each physician, in upstate industrial communities such as Schenectady there were 694 persons to one physician, and in centers having a population of less than 2,500 persons, despite the greater difficulty of handling large practices, there were 783 persons to each physician. The reports of the New York State Board of Charities show that of 189 dispensaries in the state, 135 are located in New York City and that over 90 per cent of the treatments given are in New York City. Hospitals show a similar concentration. Of the 186 hospitals in the state which receive public funds and which report to the State Board of Charities, 110 or 59.1 per cent, are in New York City. But of the patients treated in these hospitals, 78.1 per cent were cared for in the hospitals of New York City during nine months of 1916. Charity treatment from the dispensaries of New York City is received by approximately 20 per cent of the city's population, according to the findings of the Committee on Social Insurance of the American Medical Association. The Committee also found that 37.5 per cent of the city's physicians worked in these dispensaries, usually without remuneration. Available testimony showing the inadequacy of a large part of the work done in dispensaries, is too voluminous to be introduced here. It is an extension of this demoralizing system, necessary as it is at the present time, that the Committee recommends as an alternative to health insurance.

The proportion of physicians to population of this state is approximately one to 780, according to the majority report, and one to 640 according to statistics compiled from the Medical Directory by the Social Committee of the American Medical Association. Regardless of this discrepancy, medical service in New York state is very unevenly distributed, as the above figures indicate. Medical organizations and committees have repeatedly demanded that in any scheme of compulsory health insurance, free choice of physicians should be allowed; but again and again it has been pointed out that free choice without any limitation of number opens up the danger of concentrating a large proportion of the work to be done in the hands of so few men that the work undertaken by them will not be well done, and, furthermore, that a few aggressive practitioners might profit unduly by the opportunities created by the system. The Committee itself on July 26, adopted a resolution urging such a limitation as the majority now criticizes. Because of such objection there was introduced into the Davenport Bill a provision limiting the number of individuals who might be cared for during the year by any one physician practising under the Act, but was subsequently removed because of the opposition of the medical profession. The majority's comments on this phase of the question are most misleading, since they imply that no physician today undertakes the maximum service that might be undertaken under a former limitation in the proposed health insurance law. There are physicians today who have on their books the names of more than three times the average number of patients treated by each physician in the state. Among 2,000 insured persons, workers and dependents included, there would ordinarily at any one time be about forty persons incapacitated; but there are physicians who today see forty or more persons daily in their offices alone, and who may be responsible at any one time for the care of 200 sick, representing 4,000 of the population. With unlimited free choice of physicians under health insurance, patients would be no worse off than they are today; with free choice of physicians plus a reasonable number limitation, the patients' chance of obtaining adequate medical service obviously would be better than they are today.

The majority expresses an opinion that:

The quality of medical attention would no more be benefited in the United States than it has in Germany, Austria, and Great Britain, by the conversion of medical practice from its present plan into an enormous scheme where the practitioner would be employed from year to year under contract, and in the final analysis subject to lay dictation as to means and methods of practice

There is no reason why a compulsory health insurance law in this country should follow, so far as medical service or administrative methods are concerned, the laws of any other country. The possibility of avoiding errors into which foreign legislators have fallen, is open to us. Indeed, the precise way in which such errors can and should be avoided is indicated in the twenty-five resolutions adopted by the committee on July 26, 1919. Legis-

lation framed upon these lines would be a distinctly American product, departing radically in its medical service features, for example, from the English law. While the English law is defective from the American point of view, the testimony submitted to the Committee by Margaret Bondfield, delegate from the British Trades Union Congress to the American Federation of Labor Convention, brought out the fact that health insurance was improving the health of the British people because for the first time many could afford to take care of their health. She said that as early as 1914 an official British investigating commission found that as a result of the rest obtained under the Act, certain cases had attained better health than they had known in years.

Contrary to the statement of the majority that the British Act has proved so defective that it is proposed to inaugurate a plan of state medicine to supplant it, Miss Bondfield presented evidence to the Committee showing that in 1916 the Conference of Local Medical and Panel Committees, consisting of representatives of doctors engaged in health insurance practice, affirmed that state medical service would meet with their strongest opposition. She also stated that in 1917 the Insurance Acts Committee of the British Medical Association also reported a very general preference for an improved panel system rather than for state medical service. The Committee, moreover, recommended, said Miss Bondfield, that medical care under the Health Insurance Act be extended to include hospital care, consultant and specialist service and nursing, and that these, as well as the limited benefit provided under the original Act, be extended to the dependents of insured wage earners. This recommendation seems to have been due, Miss Bondfield pointed out, to the realization among the leaders of the profession that the alternative to such an extension was state medical service. Recent publications report conferences upon these extensions of medical benefit between the Insurance Acts Committee of the British Medical Association and the insurance authorities.

Miss Bondfield also specifically brought to the Committee's attention the following conclusion of the Insurance Acts Committee of the British Medical Association, reached after circulating questionnaires among the profession, that:

> The degree of unanimity so far disclosed is somewhat remarkable. On a subject which five years ago was the most highly controversial that had ever been before the medical profession, and which still in some places, and everywhere in some of its aspects, excites argument, it is found (1) that many matters which at the beginning of the controversy gave rise to most apprehension have assumed a position of quite minor importance; (2) that the general system by which the state provides medical advice and treatment under the insurance scheme is in the main approved, and that criticisms have a tendency to concentrate upon a comparatively few points. . . .; (3) that there is a large body of opinion in favor of the extension of the health insurance system both to kinds of treatment not at present provided for and to classes of persons at present excluded therefrom.

The statement that the majority "feels very strongly that the inquisitorial powers which would be conferred upon the State Industrial Commission and its agents, and upon the local boards of directors must be considered in its effect upon the public health, and especially as to the rôle it might assume in submerging and nullifying the activities of the present State Department of Health which has played so large a part in the reduction of morbidity and mortality by means of preventive, not palliative, medicine" can only be characterized as misleading. The majority does not undertake to show that compulsory health insurance requires "that inquisitorial powers be conferred upon the State Industrial Commission or its agents." The principal functions of the State Industrial Commission (if that body were in fact entrusted with the administration of a compulsory health insurance law, though such a law might easily be drafted without reference to the State Industrial Commission) would be to provide for the payment of cash benefits to the sick during periods of unemployment due to disability caused by sickness and to provide necessary medical care. The claim that the performance of these simple functions would "nullify the activities of the State Department of Health" is utterly unreasonable!

Moreover, the actual experience of Great Britain during seven years' operation is directly to the contrary. In a survey of the field of public health activities in Great Britain, the Ministry of Reconstruction reported in 1919 that:

> The practical administration of this novel provision immediately threw into strong relief the somewhat dehumanized characteristics of the public health system, together with the narrowness of its limitations and the inadequacy of its administrative provision. In 1914 Mr. Lloyd George pointed out that "the Insurance Act has done more than any number of Commissions to locate, to define, and to classify the problems of public health. I will not say it has revealed, but it has given prominence to one very striking fact—that an immense number of men and women, through that lack of vitality and stamina which comes from unhealthy conditions and surroundings, live lives that are a prolonged struggle against debility and disease." The attention thus drawn to these conditions not only stimulated provision for the direct alleviation of existing suffering, but also encouraged the rediscovery, as it were, following the course of evolution of medical science, of a humaner principle of prevention, as the means by which the sufferings of the individual could best be relieved or averted.
>
> In another general respect the Insurance Act entirely altered the previous position. It created a new body of organized public opinion with a financial interest in the improvement of the national health.

Summary

The evidence submitted above, which the majority has ignored, shows conclusively that sickness plays a most important rôle in compelling persons to seek charity. The Committee called attention to the inadequacy of medical care in rural districts in its July resolutions; to its inadequacy in New York City I can personally testify. To overcome existing shortcomings in medical practice, the Committee formulated and adopted last July a constructive program for the organization of medical care under health insurance. That program constitutes the substance of the present minority report.

S. S. GOLDWATER.

SUMMER CAMPS TO SUPPLEMENT PHYSICAL TRAINING

Physical training afforded to the youth of New York state by compulsory military training is inadequate according to Dr. Felix Adler of the State Reconstruction Commission, who has announced that that body will recommend establishment by the state of summer camps at which boys between sixteen and eighteen years old may spend two weeks with a program of sport for the rest of the year, supervised by the Department of Education.

"Camp life," said Doctor Adler, "gives youth community spirit, while the military training law asks the boys to bite off more than they can chew by trying to implant into their minds full grown a big thought." This, he added, engenders a "feeling of duty rather than a spirit of sacrifice."

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

A TEXT-BOOK OF UROLOGY IN MEN, WOMEN, AND CHILDREN. Including Urinary and Sexual Infections, Urethroscopy, and Cystoscopy. By Victor Cox Pedersen, M.D., F.A.C.S., Consulting Physician to Selective Service, Headquarters, New York; visiting urologist to St. Mark's Hospital, etc.*

The outstanding feature of this work consists in the author's attempt to present the entire problem of urology in a new and original manner. To quote his own words: "It is planned on a rather uniform discussion of the clinical side of the diseases included, for the benefit of students and general practitioners who, in not being widely familiar with the subjects, will be served by a fixed viewpoint."

The meaning of this exact quotation may not seem entirely clear, but this sentence, most assuredly, is a fair example of many other similar ones in this book.

Personally, the reviewer considers this new arrangement of the subject a failure. Or, to quote once more from the preface: "The disadvantage of fixed structure is a varying amount of similarity of style in passing from one disease to another or from one chapter to the next, but the effort has been made to correct this disadvantage by variations in diction." No variations in diction, sometimes clear at others obscure, help the reader to overcome his ever growing irritation of repetition, when forced to read through about three to four hundred pages devoted to the writer's eight or ten different varieties of urethritis. Each of them is singly taken up each time when pathology, symptomatology, diagnosis, etc., are discussed. This volume of urology contains eight pages devoted to gonorrheal eye infection, twelve pages on joint involvement, and refers the reader in the index to page 152 when seeking information concerning the relation of "urology" to sterility. On this page under "chronic epididymitis" appears this one sentence: "Sterility is the result of obstruction from the nodes and of destruction by the chronic suppuration." We assume, indeed, we trust that this thick volume somewhere offers some more enlightenment on this important question of sterility, but it just can not be found as the result of this new arrangement, the original feature of this new contribution to urology.

SYPHILIS AND PUBLIC HEALTH. By Edward B. Vedder, A.M., M.D., Lieutenant Colonel, Medical Corps, United States Army.†

The syphilis problem to-day is the most important health problem of this country. A thorough familiarity with this question in all its manifold aspects has become the indispensable requirement of every practitioner of medicine. He, therefore, will welcome this new enlightening contribution by a recognized expert. The small volume covers the mere statistics of the prevalence of syphilis, the various sources of infection, the problem of personal prophylaxis, including the eminently important question of marriage of the syphilitic, and concludes with an instructive discussion of public health measures to combat the disease.

BIOCHEMICAL CATALYSIS IN LIFE AND INDUSTRY. PROTEOLYTIC ENZYMES. By Jean Effront, professor in the New University and director of the Institute of Fermentations of Brussels. Translated by Samuel C. Prescott, professor of industrial microbiology, Massachusetts Institute of Technology, assisted by Charles S Venable.*

This is a translation of a work published in 1914 which was, even then, far from being up-to-date. It may be taken as an interesting and lucid account of the state of knowledge on the subjects of which it treats, as it stood about the end of 1911. Few references later than that date are found, and we noted none later than 1913. As a considerable amount of work has been done since, especially on the capital question of the actual nature of the ferments, it would have been better had the translator obtained the original author's consent to a certain amount of revision. The work is, nevertheless, of great value, especially those parts of it which deal scientifically with the industrial applications of proteolytic ferments, as in the cheese industry.

TUBERCULOSIS OF THE LYMPHATIC SYSTEM. By Walter Bradford Metcalf, M.D., associate in clinical medicine, University of Illinois, College of Medicine; member, Consulting Staff Cook County Hospital, Chicago Municipal Tuberculosis Sanitarium, Lake Geneva Sanitarium, Volunteer Medical Service Corps of the United States; formerly attending physician Cook County Hospital, Department of Tuberculosis.†

This monograph fills out a gap in the English literature on tuberculosis for, up to the present, there was no book written originally in English, dealing with the subject of tuberculosis of the lymph glands. There is one monograph in German, written by Ghon and translated into English, which deals with tuberculosis of the lymph glands. Ghon's work, however, is confined to the pathological phase of the subject, while the book of Metcalf embraces every phase of tuberculosis of the lymphatic system.

There are a number of views expressed by the author which are as yet not universally accepted. Such, for instance, is the subject of tuberculin treatment about which the author is very enthusiastic. There are many authorities on tuberculosis who believe that tuberculin is of no value in treatment. The author must be given credit, however, for his enthusiasm on the subject, and

(Continued on Adv. Page 22)

*Lea & Febiger, Philadelphia, 1919, $7.
†Lea & Febiger, Philadelphia, 1918, $2.25.

*Chas. Wiley & Sons, Inc., New York, 1917, $5.
†Macmillan Company, New York, 1919, $2.75.

The Day's Work and the need of Sleep

WITH a good rest and sound sleep every night, the healthy man or woman ought to feel fresh, bright, ready for anything the next morning. If you feel "tired" any considerable part of the time, it may be the fault of your *bed.* Or you may have a sturdy, noiseless bed but with a faulty *spring,* or a lumpy *mattress.*

A bed is bought to sleep in. Yet people go into store after store—inspect beds beyond number—are told everything about styles and prices, but never a word about *sleep.*

Sound sleep is a state of absolute repose—complete relaxation. The body is relaxed—digesting food, eliminating tissues used up during the day's work, rebuilding for tomorrow.

The nerves are composed—but always alert.

No matter how sound asleep you are, your nerves catch the slight rattle of your bed, the little squeak in the spring, or feel it tremble or give. They tense the muscles. And while one may not actually wake up, there is a feeling the next morning of "being all tired out."

For nearly two generations, Simmons Company have studied the needs of the sleeper and specialized in the production of "Beds Built for Sleep," that are noiseless, sturdy, comfortable; that *invite* sleep instead of repelling it.

Physicians, Public Health Officials, Nurses and Industrial Welfare Workers interested in the subject of sleep will find much that is helpful and timely in the booklet recently issued, "What the Leading Medical Journals and Health Magazines say about Separate Beds and Sound Sleep." A copy of this booklet will be mailed upon request.

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, Vice President. H. T. McCLURE, Secretary.

58 EAST WASHINGTON STREET, CHICAGO.

Telephone—Majestic 8040 and 8041.

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber'a address should give both old and new addresses. Notice should reach us fifteen daya in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, newa items, etc.), correapondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully aolicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every inatance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

58 East Washington Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name_____

Street _____

City _____ State _____

BOOKS OF THE MONTH

(Continued from Page 178)

for the manner in which he presents it to the reader. After all, it is the privilege, nay, the duty of an author to express his own views on the subject he is dealing with, and the intelligent reader of today expects a book to be not only a mere compilation of subject matter, but also a decisive expression of the author's ideas based on accumulated experience.

The reference at the end of the book is helpful, although not uniform. At times, only the year in which an article was published is given, and not the volume or the month; at other times the volume is given, but the page is omitted. Very often the volume is indicated by Roman numerals, and then again by Arabic numerals. This, however, is a mere detail, and should be overlooked in view of the enormous amount of materials contained in this valuable little book.

THE REALITIES OF MODERN SCIENCE. An Introduction for the General Reader. By John Mills, Research Laboratories, Western Electric Company, Inc.; member, American Physical Society. Author of "Radio-Communication," etc.*

The development of physical science establishes the essential unity of all natural processes. School curricula which consider physics and chemistry so separate that they are studied in different years and from texts which carefully refrain from encroaching on each other's fields are perhaps to blame for the confusion that exists in the average conception of scientific relationships. All who feel the need of a better orientation in modern science will find this book by Mr. Mills of distinct service. It gives an interesting account of the historical development of the fundamental concepts of science and makes an easily comprehensible statement of quantitative relationships. It should appeal to the average well informed reader as well as to the physician.

The realities of modern science he states to be matter, indestructible and irreducible; and energy, exactly measurable and subject to transformation, but not to loss. In chapters on the motions and interactions of electrons, the continuity and correspondence of molecular states, electrolytic dissociation, molecular magnitude, and molecular energy, he discusses the electronic constitution of matter which today is commonly accepted. "Its development has been so rapid that few scientists besides those actively engaged in research have as yet adopted its terminology and the necessary point of view. In terms, however, of electrons and quanta, the scientific progress of the next few years will undoubtedly be expressed."

THE LIFE OF MATTER. By Arthur Turnbull, M.A., B.Sc., M.B., (Glasgow).†

As stated in the introduction, the work purports to supply a reliable guide and insight into observational method and experiment, and to afford an interpretation of the application of modern science to the necessities of life. Part I treats matter as dead and inert, the elements apparently unrelated until the substances were arranged in such sequence as to enable the prediction of the existence of elements not then discovered; but even his first chapter hints of behavior in certain elements for which adequate explanation has not been offered.

A rapid sketch follows of matter in action; of opposite action, from cloud to star, from element to plant and

(Continued on Page 24)

*The Macmillan Co., New York, 1919, $2.50.
†J. B. Lippincott Co., Phila., 1919, $3.

INFLUENZA

DICHLORAMINE-T

Will Tend to Prevent Influenza

During the influenza scourge of the fall and winter, 1918-1919, Dichloramine-T received careful trial by many prominent practitioners. These men believed that since Dichloramine-T had proven its power to protect against diphtheria, meningitis, and similar infections originating in the upper respiratory tract, it should have the same power against influenza.

Thousands of people, in some cases the entire working force of large industrial plants, received sprays, twice daily, to the nose and throat, of a 2% solution of Dichloramine-T in Chlorcosane.

Results fully justified their faith. Wherever the Dichloramine-T sprays were used regularly, influenza failed to become epidemic. The power of Dichloramine-T to prevent influenza was fully tested.

Let's Be Prepared

At the first indication of a return of the influenza epidemic, resort immediately to this tested line of defense. Meet the enemy at port of entry, rendering the upper air passages hostile to his development and you've won the battle. Prescribe and use Dichloramine-T in Chlorcosane, Abbott.

Literature on Request

IN THESE PACKAGES:

DICHLORAMINE-T
Powder in 1 oz. bottles and 4 oz. bottles.

CHLORCOSANE
In 4 oz., 16 oz., and half-gallon bottles.
CHLORCOSANE Atomizer, $1.25

CHLORAZENE

AS a Gargle

Chlorazene, Dakin's water soluble antiseptic, is used in 0.25 per cent solution as a gargle every two hours following the Dichloramine-T spray, to enhance the effect. It is also recommended as a gargle before boarding street cars, trains, or entering other public places. It keeps the throat sweet and clean and aids in preventing the breeding of harmful bacteria.

For Influenza Prophylaxis *Spray with DICHLORAMINE-T twice daily to nose and throat*
GARGLE WITH CHLORAZENE 0.25 solution every two hours

Supplied in the following packages:
Chlorazene Tablets, 4.6 gr. each. Bottles of 100, 500, 1,000. Chlorazene Powder, Pkg. No. 1 makes 4 gallons 0.25 solution. Pkg. No. 2 makes 20 gallons 0.25 solution. Also Chlorazene Surgical Cream and Chlorazene Surgical Powder.

Literature on Request

The Abbott Laboratories
Home Office and Laboratories
Dept. 27 CHICAGO, ILL.
New York San Francisco Seattle
Toronto Los Angeles Bombay

Abbott-Quality
MADE IN AMERICA

The Scientific Principle That Makes the New York Study Chair Unique Is

The correspondent adjustments of the seat, the lumbar support, and the desk top, making it conveniently possible

TO FIT EACH CHAIR AND DESK TO THE INDIVIDUAL OCCUPANT ANATOMICALLY RIGHT

insuring good posture
in a sitting position

Earl Thompson
Sales Agent
New York City, N. Y.
70 Fifth Avenue Cor. 13th Street

Free Literature on Request

BOOKS OF THE MONTH

(Continued from Page 22)

animal tissue; natural selection in the development of species; adaptability; external influences; and the nature of force or energy. Again in the chain of forces he finds the usually ascribed causes incomplete, but all sufficiently indicating that all the changes in nature have something in common. "Force flits, a ghostly body, from one piece of dead matter to another, activating them in turn, as a bee flits from flower to flower, fertilizing them as it goes."

He rapidly traces the development of man, the decisive factor in every change being the previous condition of the thing changing. He is not satisfied to accept Weisman's theory of man as the more or less passive medium of the current of life passing from one generation to another. He discusses so-called "free action" as proceeding from the brain memory of past sense impressions. In passing, he comments on "body and germ," the danger of disease corroding the finer paths of the brain, and of the unintelligent waste of money and effort in the endeavor to "train out predetermined effects of bad hereditary determinants."

All of which leads up to his discussion of the need for inquiry. The natural selection of Darwin, he says, fails to explain the differences of tissue, does not account for the decline in the fertility of a race or for many forms of degeneration. He proceeds to develop his thesis of energy stored and energy transformed. Change is never from without; an external cause is never a controlling factor, and the end difference or result depends upon the internal cause and inner strain. All hitherto unexplained phenomena he attributes to universal life processes, or "activation."

His "action-strain-result" leads him to regard minerals, plants, animals, and man as "active." This constitutes for him a basis from which to reason out the nature of changes which cannot be expressed in the finite terms of our modern science and he evolves the aphorism that "activity is too simple to be understood. . . . (1) Every form of matter is active and eternal. (2) Like causes never produce like effects. Every action is different. Every change is new. (3) Action and reaction are unequal. There is no such thing as a reflex. . . . No individual is merely a more or less complex tissue-unit." He deduces that the life of mankind has a higher value than it has hitherto attained.

DISEASES OF INFANTS AND CHILDREN. By Henry Dwight Chapin, A.M., M.D., professor of diseases of children, New York Post-Graduate School and Hospital; Supervising Physician of the Children's Department, New York Post-Graduate Hospital; Consulting Physician to the Willard Parker Hospital, etc.; and Godfrey Roger Pisek, M.D., Sc.D., professor of diseases of children and attending physician to the New York Post-Graduate Medical School and Hospital; professor of diseases of children, University of Vermont, Medical College; Visiting Physician to the Willard Parker and Riverside Hospitals, etc.*

The present is the fourth edition of this work, the first appearing in 1909. Many of the chapters have been revised, and new subject matter added in the form of chapters on Acidosis, Food Allergy, Epidemic Encephalitis, Functional Heart Disorders and certain phases of spasmophilia.

It would seem as though the revision to which the work was subjected before the appearance of the present edition might, with much profit, have been made more thor-

(Continued on Adv. Page 26)

*William Wood & Company, New York, 1919, $4.

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment. Literature and samples from

RIEDEL & CO.
326 Broadway
New York City

FOR DIET CONTROL IN INFANT FEEDING

The choice of these dependable products affords the physician convenient means of selecting food mixtures suited to the individual requirements of individual cases.

MEAD'S DEXTRI-MALTOSE NO. 1

(With Sodium Chloride 2%)

For general use in infant feeding. Especially indicated in infants recovering from diarrhoea, infants with feeble powers of digestion who have tendencies to diarrhoea. Valuable as an addition to Protein Milk.

MEAD'S DRY MALT SOUP STOCK

For difficult feeding cases. Indicated in marasmus, weight disturbance (failure to gain), infants afflicted with recurrent diarrhoea from intestinal indigestion, and those cases occasionally met which do not do well on milk, water and sugar mixtures.

MEAD'S DEXTRI-MALTOSE NO. 3

(With Potassium Carbonate 2%)

For use in constipation, when boiled feedings are used, or where the addition of potassium to the infant's diet is indicated.

Full information regarding these products furnished on request.

MEAD JOHNSON & CO. **Evansville, Ind.**

Flavor Is the Basis of All Food

Experienced dietitians recognize Flavoring Extracts as first aids to convalescence—making nourishing foods and drinks more palatable, hence promoting digestion and assimilation.

Since, in the feeding of the sick and convalescent, flavor is such an important factor, it follows that physicians and dietitians should insist on the use of only the purest and strongest flavors. The best is always the most economical when the insignicant cost per pound of food flavored is considered.

SAUER'S
PURE FLAVORING EXTRACTS

are made from the choicest materials obtainable in a modern and sanitary plant with every possible care taken in their manufacture. Prepared in glass lined tanks and filled by vacuum into sterilized bottles.

Sauer's Extracts have won seventeen highest awards and medals at various American and European Expositions for

Purity, Strength and Fine Flavor

Uniform high quality has made Sauer's the largest selling brand in the United States.

Ask us for price list

The C. F. Sauer Company
Richmond, Virginia

BOOKS OF THE MONTH

(Continued from Page 24)

ough. For instance laryngismus stridulus is described on p. 350,. spasmophilia on p. 481, and tetany on p. 483, each under its own separate heading, with separate (and different) "etiology" and "treatment." The importance of the role played by the calcium salts in the metabolism is not emphasized, and no mention made of the brilliant results of treatment with magnesium sulphate when given hypodermically. Similarly, in discussing hydrocephalus, the only factors mentioned as having a possible etiologic bearing are "parental alcoholism, tuberculosis, syphilis and neurotic diseases" but not a word about the splendid studies of Dandy and Blackfan which not only place the pathology of this condition on a firm foundation but in certain instances even point the way to successful treatment. Again, under "keratitis" phylctenules are described as vesicles when in reality they are not vesicles but solid nodules.

The book contains some good tables on growth, development and the composition of many so-called infant foods, as well as some very helpful diet lists for older children.

THE PHILOSOPHY OF CONFLICT and other essays in war-time. By Havelock Ellis.*

This delightful collection of essays treats many diverse topics, but through them all runs a thread of continuity as they constitute a many sided view of the problems of reconstruction to be solved after the war. The things he sees do not altogether please him, but he sounds a warning against admitting only the facts which it is pleasing to believe.

Through the rise and fall of successive civilizations he traces the kinship of the warring peoples. The result of any conflict must serve concrete biological ends. An enemy, he says, can inflict on us no such defeat as we have power to inflict on ourselves by falling to any lower level. "Let us not, therefore, lose sight of the difference between the great ideas which carry men forward and the violences and extravagances which carry men back, for . . . it is the men who look forward who live." He considers that war itself must eventually disappear. War has served its purpose. Without struggle and conflict there would have been no world at all. Conflict, contact, interaction of different cultures have furnished "the starting points of all the great movements in human history which we are accustomed to regard as progressive."

The two causes of war are already decaying, he says. The birth rate necessarily falls with every rise of culture. Likewise, excessive industrialism has passed its climax. There is no more world left to fight for. With the regularization of industrial and commercial activities, the economic cause of war falls away, and the energy thus released is free for sublimation into more exalted forms of activity.

Perhaps the most significant chapters are those devoted to the eugenic policy of the future. The military idea that a high birth rate means military efficiency is altogether fallacious. The European countries with the highest birth rates are precisely those which have met overwhelming disaster in the war. Intelligence, initiative, resourcefulness, endurance, caution, courage, the discipline that causes self-reliance and mutual reliance,—all the fundamental human qualities can only be developed slowly by free activity in the manifold business of ordinary life.

(Continued on Page 28)

*Houghton Mifflin Company, Boston, 1919, $2.50.

An Important Food Discovery

HEBE—a wholesome, pure, economical food

PHYSICIANS, hospital executives, and health officials—those most concerned with the health and welfare of the nation—should be interested in the new food product, HEBE, not only because of its dietetic value, but also because of its importance as an economic addition to the world's food supply.

HEBE is a scientific emulsion of evaporated skimmed milk and cocoanut fat. HEBE reclaims for human use skimmed milk which is otherwise so largely diverted to stock-feeding, and puts it in form to make its use desirable as a cooking ingredient. This releases for direct feeding purposes a large volume of the whole milk now used in cooking and increases the use of dairy products in the home.

It is known to all students of food values that skimmed milk lacks only the butter fat to make it a perfect human food. With the addition of pure, scientifically processed vegetable fat, skimmed milk can be made an easily digestible, nutritious food. Thus enriched, it makes a desirable, economical and healthful ingredient in cooking and baking, and can be used in coffee, too.

HEBE is a wholesome food, rich in necessary dietary elements—proteins, carbohydrates and fat. In every one hundred pounds of HEBE there is all the food value of 210 pounds of skimmed milk *plus* the heat and energy value of 7.8 pounds of pure, refined vegetable fat. In the reduction, water only is removed.

HEBE is all that a good food should be. The high nutritive value and absolute purity of the ingredients, the scientific processing in manufacture, and the extreme sanitation observed in the production and marketing of Hebe should secure for it the most hearty approval.

In these days of food shortage and high prices the production of a new food possessing the advantages of Hebe is an event of interest to health authorities, physicians and food chemists. We will gladly send, upon request, a booklet giving the complete facts about the dietetic and economic value of HEBE. Address 2222 Consumers Bldg., Chicago.

CHICAGO THE HEBE COMPANY SEATTLE

Electrically Lighted Surgical Instruments

The Sign of Service

E. S. I. Co.

Ours is a name of accomplishment in the cause of diagnosis. In the beginning an electrically lighted surgical instrument is made to embody the ideas of a distinguished physician or surgeon. Each accomplishment by the light of this instrument is a tribute to his skill and its efficiency, opening the way to greater gains for diagnosis and to suggestions for betterments in instrument construction.

Building upon the ideas and from the suggestions of these physicians and surgeons, admittedly great in the respective branches of their exacting profession, is the story of "E. S. I. Co.," from the origination of electrically lighted surgical instruments up to the indispensable service they render today.

Origination begets imitation. Be sure of our name.

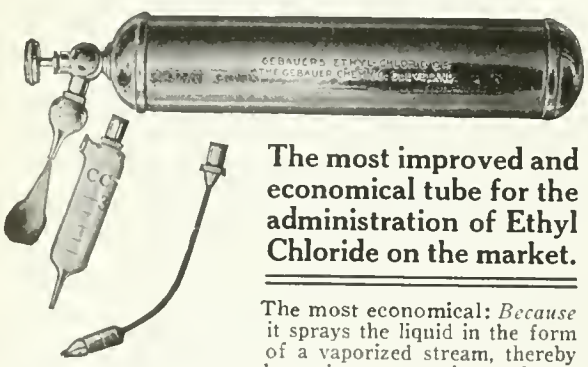
Illustrated and Descriptive Catalogue sent upon request.

Electro Surgical Instrument Company

ROCHESTER, N. Y.

Ethyl Chloride (Gebauer's)

Local and General Anesthesia



The most improved and economical tube for the administration of Ethyl Chloride on the market.

The most economical: *Because* it sprays the liquid in the form of a vaporized stream, thereby hastening evaporation and consequent anesthesia, using 1-10 the liquid used by other tubes. *Because* the ethyl chloride is put up in a mteal tube that will not *leak* or *clog* and the liquid is guaranteed to maintain its purity indefinitely.

40 grm tube with ordinary spraying nozzle,	$1.10
80 " " " " " "	1.75
Flexible spraying nozzle alone, - - -	.50
Graduated dropper, - - - - - - -	.50

The flexible nozzle and the graduated dropper will fit either size tube and can be used indefinitely.

For Sale By

THE GEBAUER CHEMICAL CO.

CLEVELAND, OHIO

BOOKS OF THE MONTH

(Continued from Page 26)

The old problems of eugenics have acquired a new urgency for preventing the breeding of the unfit, for dealing with the actual and threatened spread of venereal diseases, and for enlarging and requickening sexual morality and social customs in such a way that women may be permitted free play of their best impulses and ideals in the purification and fortification of the race of the future. He emphasizes the fact that we possess in birth control an invaluable instrument for immediate social betterment and for the elevation of the race. He gives serious consideration to the problems involved and says that work can progress in three directions toward rendering eugenic ideals effective, (1) by increasing and promoting knowledge of the laws of heredity; (2) by popularizing a knowledge of the methods of birth control; and (3) by acting in accordance with our knowledge. This last does not involve hasty eugenic legislation so much as sifting out the "irreducible nucleus of the incapable group which constitutes a real anti-social danger and a focus of racial poisons."

Succeeding chapters deal with war and the sex problems, the unmarried mother, with the social and economic status of woman and psycho-analysis of sex, all as problems of social reorganization made more acute because of the war.

THE BIOLOGY OF BLOOD-CELLS. With a Glossary of Hematological Terms. For the use of Practitioners of Medicine. By O. C. Gruner, M.D., Lond. Author of "Studies in Puncture-Fluids," "A Code System for the Hospital Pathologist"; pathologist to the Royal Victoria Hospital and to the Maternity Hospital, Montreal; assistant professor of pathology, McGill University, Montreal, late clinical pathologist, General Infirmary at Leeds.*

The author starts out with a highly poetical introduction, which reads very pleasantly. To quote:

"Let the reader imagine himself to be transported by magical means to the center of an absolutely new city, inhabited by beings of a different and hitherto unknown race. How would he proceed to find out the story of these beings? He would not be content to stand at the street corner or in the gateway, and collect together five hundred of the bustling, active, hurrying toilers as they passed, and, mingling them with a few of the indolent loungers in the vicinity, proceed to classify all these persons into percentages according to their types. From a convenient vantage ground he would carefully note the peculiarities of each passer-by, dividing them into as many different types as he could; and he would not confine himself to a short period of the day, but would observe the different features about the people—at this time, at that; tomorrow; a month hence; by day; by night. Furthermore, it is not to be conceived for an instant but that he would look at the buildings, the roads, the material transported along the streets, and that he would feel a desire to ascertain the processes at work within those buildings; to see the factories; to see where the people came from; where they went; how they died; why they died; and what part each played in the whole fabric of life.

"It is evident, therefore, that a clear idea of the blood cells predicates more data than are supplied by taking a single drop of blood, drying it, and subjecting it to a microscopic examination. Maybe this is the only feasible procedure in a patient, but it is not the only method by which the subject can be studied."

(Continued on Adv. Page 30)

*John Wright & Sons, Ltd., Bristol, 1913, 21/ net.

Whooping-Cough
and
Vaccine Treatment

OSLER, HARE, FORCHHEIMER and other medical authorities agree that whooping-cough causes more deaths under one year of age than any other infectious disease. In America more than 10,000 children die each year from whooping-cough.

CLINICAL EVIDENCE indicates that Pertussis Vaccine is of value both for the prevention and treatment of whooping-cough. The average duration of the disease under vaccine treatment is about 3½ weeks as compared to 9 to 10 weeks under drug treatment. The most recent report is by Bloom (Archives of Pediatrics, January, 1919), who concludes:

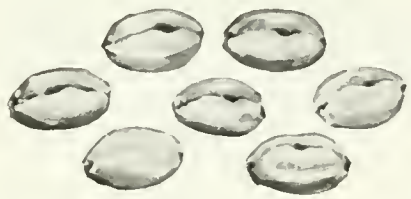
1. Vaccine therapy in pertussis is rational and effective.
2. Experience has proven its efficiency both as a prophylactic and as an active therapeutic agent.
3. Usage:
   - (a) Minimizes loss in weight.
   - (b) Reduces duration of the disease.
   - (c) Decreased the intensity of the illness.
   - (d) Foreshadows possibilities of complications and sequelae.
   - (e) Unattended by danger of anaphylaxis.
   - (f) Limits the mortality.

Requests for further information are invited

Lederle Antitoxin Laboratories

511 Fifth Avenue
New York City

Chicago Kansas City Minneapolis New Orleans
San Francisco Montreal Winnipeg



Puffed Wheat

In Actual Size

Every Food Cell Exploded

Puffed wheat is whole wheat puffed to bubbles, eight times normal size.

The grains are sealed in guns. The guns are revolved for one hour in 550 degrees of heat. The moisture in each food cell is thus changed to steam.

Then the guns are shot and the steam explodes. Over 100 million explosions occur in every kernel. Thus every granule of the whole wheat is fitted to digest.

All Puffed Grains are puffed in like way—by Prof. Anderson's process. The result is most enticing foods, thin, flavory, flimsy morsels. And the best-cooked grain foods in existence.

They are always delightful, and in many conditions you'll consider them important.

The Quaker Oats Company
Chicago

Puffed Wheat
Puffed Rice
Corn Puffs

3287

BOOKS OF THE MONTH

(Continued from Page 28)

And again he says:

"We shall thus find that each 'blood-disease,' at some stage in its course, is the outward evidence to us of a tragedy in the life-history of the particular portion of the hematopoietic system, and we shall dimly appreciate the fact that orderly blood formation demands constant single-hearted coöperation on the part of the other tissues of the body as well as coöperation with the brain, which should see that deleterious agents are not admitted by carelessness in diet and general hygiene. Withdraw such influences, and the formative blood cells are stranded; they make desperate attempts to breed true and follow up definite harmoniously apportioned (methodized) sequences of differentiation; fail, and are irretrievably lost, because destroyed by the harmful agent, or merely maimed until such time as better conditions prevail. The individuals of the army which fight such incessant warfare under these conditions are at the same time inconstant as entities; they are ever changing, ever moving about and ever reproducing, not working together for individual purposes, but all subserving common necessities, while each still acts for himself where nutrition is concerned."

The poetry, however, disappears as soon as the text is approached, and a technical discussion, at times even too technical for the ordinary reader, takes its place.

The author shows a thorough knowledge of his subject. He has put forth a good book for biologists and technicians. We do not, however, agree with him that the book is for the practitioner of medicine. We believe it is too technical for the average practitioner.

However, if a physician wants to enlighten himself on the deeper problems of hematology in all its phases, we would strongly recommend this highly scientific book.

PULMONARY TUBERCULOSIS. By Maurice Fishberg, M.D., clinical professor of medicine, New York University and Bellevue Hospital Medical College; attending physician, Montefiore Home and Hospital for Chronic Diseases, New York.*

This is the second edition of a very excellent work on pulmonary tuberculosis. The author has a clear conception of his subject and a breadth of view which have enabled him to consider the wide ramifications of this disease most ably. The many differences in symptomatology between tuberculosis in childhood and in later life, and its peculiarities during the period of infancy, are well stated. This fact is worthy of emphasis because the relationship between infection with the tubercle bacillus during the period of childhood and the appearance of symptoms of phthisis in later life is not generally enough recognized. There are many excellent illustrations, the reproductions of roentgenograms covering almost all varieties of lesions. In discussing treatment, the author has gone into the subject of the home care of the consumptive in great detail, being perhaps a little unfair in his attitude toward sanatoriums; but since most of these patients never enter a sanatorium, and even those who do must be cared for in the home before entering and after leaving such institutions, this phase of treatment assumes an added importance.

The book has been thoroughly revised and brought up to date, and contains innumerable references to the literature, so arranged as to make them easily accessible to the reader.

(Continued on Adv. Page 32)

*Lea & Febiger, Philadelphia. 1919. $6.50.

STERLING
Therapeutic Lamp
"The Light That Heals"

Has proved one of the most efficient methods of relieving pain; its effect is soothing and analgesic; its rays are germicidal. The warm, soothing, soft rays penetrate and vitalize every cell and tissue, new cell growth is stimulated; the body is refreshed and vitalized.

In rheumatism, neuralgia, neuritis, lumbago, in nervous conditions and a score of other symptoms and diseases, including skin and scalp disease, the Sterling Therapeutic Lamp is invaluable for the relief from pain, inflammation and for corrective purposes.

Scientific—Efficient—Economical

With stand it is ideally adapted for additional use as a spot light for operations and examinations as illustrated. Widely used in sanitariums, physicians' offices and hospitals; special sizes are adapted for the use of patients under the supervision and direction of the family physician.

Write for our interesting Illustrated Booklet showing the various sizes and uses of the Sterling Therapeutic Lamp.

Sterling Therapeutic Lamp Co.
Dept. 21, 546 Garfield Ave., Chicago, Ill.

Progressive Physicians and Surgeons—
You will find the New
AMERICAN FROHSE
Life Size **Anatomical Charts**

an invaluable aid in your everyday work, for quick reference and review.

These charts have been Edited, Revised and Augmented by

MAX BRODEL

Professor of Anatomical Drawing, John Hopkins Medical School.

Paste this coupon on a postal with your address, for free booklet giving full details about the American Frohse Life-Size Anatomical Charts.

Gentlemen:
Send me free booklet (in colors) describing the American Frohse Life-Size Anatomical Charts. M. M. 22

A. J. NYSTROM & CO. 2249 Calumet Avenue Chicago

TRADE MARK

For twenty-five years the firm of V. Mueller & Co. has supplied the needs of surgeons and hospitals.

Mueller materials are known for their excellent quality and pattern.

Unusual facilities are available to those contemplating the installation of industrial hospitals or first aid rooms.

A complete stock of surgical instruments, furniture and apparatus for immediate delivery means service which cannot be found elsewhere.

Our estimating department will gladly submit plans and quotations.

V. MUELLER & CO.

1771-81 Ogden Avenue **Chicago**

Keep Your Patient On the Job

by relieving pain and speeding recovery through the use of

Thermolite
LIGHT AND HEAT INFUSER

The industrial clinic or hospital equipped with this scientifically designed therapeutic lamp can quickly relieve many conditions which otherwise would make absenteeism imperative.

Radiant Light and Heat

delivered in *parallel* rays have deep penetration and bring quick relief from pain, reduce inflammation and promote healing.

Thermolite can be attached to any electric light socket and it will act quicker and better than drugs or local applications in

Neuralgia	Rheumatism	Chronic Ulcers
Sprains	Neuritis	Local Infections
Lumbago	Arthritis	Dysmenorrhea

and many other conditions encountered daily by the industrial physician.

Thermolite is supplied in two forms—the **Triplex** for hospital clinics and office use, and **Simplex** (single lamp with or without stand) for home use.

H. G. McFaddin & Co.
39 Warren St., New York City

Send for booklet, "Photo-therapy"

Prices, terms, etc., free upon request

Value of Typhoid Prophylaxis

In a report issued by Surgeon General Ireland it is stated that the immense value of typhoid prophylaxis was very clearly demonstrated during World War. During 1917-1918 there were 1,083 cases of typhoid and 158 deaths therefrom in the Army. Had the admission rate for this period equaled that of 1861-62 in Civil War, there would have been 226,001 cases and 62,694 deaths, and, had rates been same as for 1898-99 in Spanish War, there would have been 291,637 cases and 30,916 deaths.

RECENT INCREASE IN CHILD LABOR

The Department of Labor has issued a recent report on investigations made in the summer of 1918, which shows that an appreciable increase is to be noted in violations of the state laws controlling child labor since declaration by the Supreme Court of the unconstitutionality of the Child Labor Law. Forty-seven out of fifty-three factories inspected in one state were employing children under the age of twelve, and in another state where the minimum age for employment in canneries was fourteen years, 721 children under that age were found at work, fifty of whom were under ten years old.

CONFERENCE ON PUBLIC HEALTH AND LEGISLATION

The Annual Conference on Public Health and Legislation called by the Council on Health and Public Instruction of the American Medical Association will be held in Chicago, March 4, 1920, with headquarters at the Auditorium Hotel. An all-day program has been scheduled as follows:

Chairman's Address, Dr. Victor C. Vaughan, chairman, Council on Health and Public Instruction, American Medical Association.

Secretary's Report, Dr. Frederick R. Green, secretary, Council on Health and Public Instruction, American Medical Association.

"Standardization of Public Health Activities," Dr. George E. Vincent, president, Rockefeller Foundation.

"Standardization of State Public Health Organizations," Dr. Charles V. Chapin, commissioner of health, Providence, R. I.

"Standardization of Municipal Health Organization," Dr. Allen McLaughlin, Assistant Surgeon General, United States Public Health Service.

General Discussion, opened by Dr. C. St. Clair Drake, commissioner of health, Springfield, Ill., and Dr. Ennion Williams, commissioner of health, Richmond, Va.

Symposium on Health Education of the Public

"Health Education in the Public Schools—Thirty Years' Experience in Michigan," Dr. Victor C. Vaughan, Ann Arbor, Mich.

"Health Education and Activities in Colleges and Universities," Dr. John Sundwall, director, Students' Health Service, University of Minnesota, Minneapolis, Minn.

"Health Education a Function of Municipal Health Departments," Dr. Haven Emerson, New York.

"Health Education a Function of State Health Departments," Dr. W. S. Rankin, secretary, State Board of Health, Raleigh, N. C.

"Health Education a Function of the Federal Government," Dr. Charles V. Bolduan, director, Division of Public Health Education, U. S. Public Health Service.

General Discussion, opened by Dr. John M. Dodson, Chicago; Prof. W. B. Owen.

The nutrient value of VIROL illustrated in a series of cases, particulars of which have been supplied by medical men.

CASE No. 3

Virol is valuable food for invalids and children. It is a preparation composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars:
50c, $1.00 and $2.00

A photo taken three months after the one below. He had been given one teaspoonful of VIROL three times a day, with milk diet. Improvement was immediate and marked, with speedy and continuous addition of weight. Ten weeks after the above was taken the child weighed 29 lbs.

A history of wasting and severe arthritis, extending over six months. So emaciated his weight had fallen to 28 lbs. Anaemic; alternate constipation and diarrhoea.

MALNUTRITION—VIROL is a dependable nutrient and reconstructive in all wasting conditions, in tuberculosis, anaemia, gastric ulcer, rickets, scurvy and all strumous conditions.

The animal fat in VIROL is so minutely divided that it is more readily absorbed than milk. The nitrogenous elements are in a form as near digestive perfection as science at present permits.

Virol

Used in more than 2000 hospitals, sanatoria, and infant clinics in Great Britain

Sole Agents for U. S.

ETNA CHEMICAL COMPANY, 59 Bank Street, New York

MERCK

Genuine

ICHTHYOL

is obtainable only in Bottles or Tubes under the Merck Seal and Label

Physical Conditioning

So many patients, especially women, lack the initiative to follow general advice regarding exercises, dietary, and personal hygiene. Physicians acquainted with my work are constantly referring these cases to me for physical and mental "conditioning."

A woman can often inspire her sex *to be* and *to do* and *hold her to this inspiration* by regular correspondence as men cannot.

Every pupil's requirements are studied individually, and each is directed according to her needs and her strength.

This cooperative work with the medical profession is giving results highly gratifying to both physicians and patients.

I shall be glad to assist you with patients who need conditioning through exercise, diet, breathing, correct poise, relaxation, reduction of flesh, or building of flesh.

Susanna Cocroft

624 Michigan Boulevard Chicago

CHICAGO TO REBUILD SLUMS

The rehabilitation of Chicago's slums and the rebuilding of the city's run down residences into comfortable quarters for workers, will be the program of the $1,500,000 Civic Real Estate Improvement Association, organized and backed by the Association of Commerce and the Chicago Real Estate Board. Actual building work will begin before spring. The Chicago Title and Trust Company has set aside $500,000, to be loaned on the properties of the corporation.

CORRECTION

It is to be noted that through error the captions on the illustrations of the articles of Maurice B. Hexter, appearing in the October issue of MODERN MEDICINE are not properly accredited. The Frauen Verein Home of Boston is not a constituent member of the Federated Jewish Charities; and the Convalescent Home of the United Jewish Charities is at Cincinnati, O., and not Cleveland.

ULTRA-VIOLET RAYS IN WATER PURIFICATION

The interest of persons concerned with water purification in the sterilization of water by the use of ultra-violet rays has called for a summarization of the literature on the subject which is published in *Public Health Reports* of December 12, 1919.

While different germs show different sensitivity to ultra-violet rays, all are destroyed on short exposures, according to Von Recklinghausen.[1] Water as it comes from a modern mechanical filter may be considered perfectly clear to the action of the rays. Such water may be treated at a total cost of $0.60 per million gallons. Chemical treatment may be somewhat cheaper, considering the expert attention required, but the increased cost is offset by a cleaner, chemical-free H_2O. Typhoid records from certain European towns show a total absence of this disease since ultra-violet sterilization was introduced.

The dependency of the germicidal efficiency of ultra-violet rays upon their wave length is considered in detail in a report[2] from Ontario, Can., and irregularities attending water supplies handled directly without preliminary filtration are noted. Over-dosing gives no detrimental effects aside from added cost.

A report of this method for circulating systems and small installations comes from the laboratory[3] of the Sanitary District of the Great Lakes with a very complete discussion of the method and its history.

Certain deficiencies of various apparatus are pointed out by L. Schwarz and J. Gasbel Aumann.[4] The 320 plants installed or approaching completion in the United States comprise twenty for swimming pools. For this purpose direct current is used at 110 to 500 volts in connection with a pressure filter. Sterilization is accomplished[5] at a cost of about $750 per 1,000 gallons per hour for machines of 200 to 3,000 gallons capacity, with a higher cost for machines of smaller capacity.

The bactericidal action of ultra-violet rays is uninfluenced by the temperature and oxygen content of the water, according to DeVoogt,[6] and different bacteria require different amounts of light.

1. Von Recklinghausen, M.: Proc. Am. Inst. Elec. Eng., 1914, xxxiii, pp. 1048 and 1906.
2. Parkinson, N. F.: Annual Report of the Provincial Board of Health, Ontario, Can., 1914, xxxiii, 156.
3. Spencer, R. R.: Jour. Am. Water Works Assn., 1917, iv, 172.
4. Schwarz, L., and Aumann, J. Gasbel: Chemical Abstracts, vii, 1069.
5. Anon: Eng. News, 1915, lxxiv, 634.
6. De Voogt, J. G.: Delft. Z. Hyg., 1916, lxxxi, 62.

A scientific staff

composed of physicians and physiological, biological, pharmaceutical and analytical chemists, has been created by these laboratories. Each man is a specialist in his own particular field and many of them are scientists of distinction. We believe that the personnel of this staff is unexcelled by that of any manufacturing pharmaceutical house.

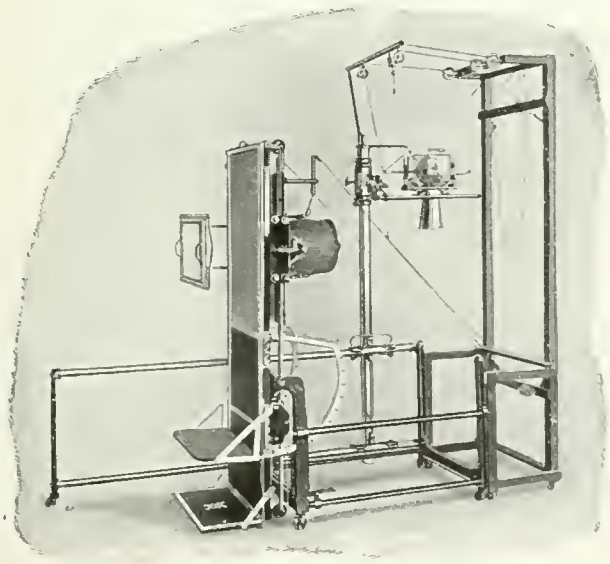
We offer the professional services of these gentlemen to medical men. Any questions along the lines of their endeavor will be gladly answered. In addition to the research work, which is being carried on in various branches of science, our staff is abundantly able to give physicians practical suggestions in all that relates to lues and its treatment.

Correspondence with physicians is invited and will be welcome as we are anxious to demonstrate our desire to cooperate with them in every possible way.

H. A. METZ LABORATORIES, Inc.

122 Hudson St., New York

For Group Clinics—For Industrial Hospitals



When you are interested in an x-ray equipment representing the most advanced ideas consistent with conservative practice, to facilitate and expedite your work, then investigate a Meyer equipment.

MULTOSCOPE, a stereo-radiographic table with tube holder and radioscope for vertical, horizontal and inclined position, with self-contained aerial and high tension switch.

KLINOSCOPE, a fluoroscopic apparatus for vertical and horizontal fluoroscopy.

TRANSFORMERS, with a marked efficiency and conservation of tubes.

DUPLEX STEREOSCOPE, enabling the surgeon and roentgeonologist to observe the view at the same time.

A competent installer and service man for every installation

THE WM. MEYER CO. 1644 N. Girard Street CHICAGO, ILL.

"KELENE"

PURE CHLORIDE OF ETHYL

For Local and General

ANAESTHESIA

Manufacturers:

FRIES BROS.

92 Reade Street, NEW YORK

Sole Distributors for the United States

MERCK & CO.

NEW YORK RAHWAY, N. J. ST. LOUIS

Literature sent upon request

Overton and Denno's

The Health Officer

By Frank Overton, M. D., D. P. H., Sanitary Supervisor, New York State Department of Health; and Willard J. Denno, M. D., D. P. H., Medical Director, Standard Oil Company. Octavo of 500 pages, illustrated. Price, $4.50, postpaid.

This new book, published in 1919, contains the information the average Health Officer must have in order to discharge his duties. It tells him what to do, how to do it, and why he should do it. It describes the various activities in which a Health Officer engages; his relation to boards of health, physicians, social agencies, and the public; his qualifications and methods of work; the various diseases and insanitary conditions with which he deals, and the scientific principles upon which preventive medicine is founded. The work is the result of ten years' experience in this field. While the book is designed primarily for Health Officers, it has a decided value to public health nurses, members of boards of health, social workers, teachers, and all others interested in organized health work.

The Modern Hospital Publishing Co., Inc.

58 E. WASHINGTON ST., CHICAGO.

CARE OF POLIOMYELITIS CASES

A survey being conducted by the New York Committee on the After-Care of Infant Paralysis Cases indicates the importance of compiling complete records of cripples and of providing adequate clinical facilities with increased means of transportation so as to bring those in need of assistance in touch with the proper orthopedic care. During the year just ended, the report shows that the Committee has taken care of 8,253 cases.

ADEQUATE CARE THE MOTHER'S RIGHT

The efficacy of the health propaganda of the United States Public Health Service depends, of course, upon educational material reaching the persons directly interested. This contact is assured by the distribution through the American Red Cross of the health bulletins "Motherhood,'" "Breast Feeding for Babies," and "Bottle Feeding for Babies." These booklets state in concise and simple form the essentials of care that make for the safety, comfort, and happiness of mother and child.

AN ORTHOPEDIC HOSPITAL-SCHOOL FOR LOS ANGELES

The Los Angeles Orthopedic Foundation, composed of seventeen prominent men in Los Angeles, with George Dryer as president, W. E. Tussing, vice-president, and H. H. Baskerville, secretary and treasurer, will provide a permanent institution to take care of the physical, educational, and vocational needs of crippled children, according to the *California State Journal of Medicine*. It will be fully equipped for corrective care, and for training the children to become self-supporting. Model cottages will be added later for the teaching of domestic science and the care of the home.

THE PHILIPPINE HEALTH ALMANAC

A health talk every day in the year is furnished by the unique health almanac published by the Philippine Health and Sanitary Service. Ten precepts for disease prevention introduce the subjects of common diseases and their remedies. There are pictorial preachments against the most common and the most flagrant bad practices, and specific help is offered on every page. From the opening page to the final pictures of sanitary model houses and gardens the book exemplifies a consistent educational health effort.

AMERICAN JOURNAL OF PUBLIC HEALTH

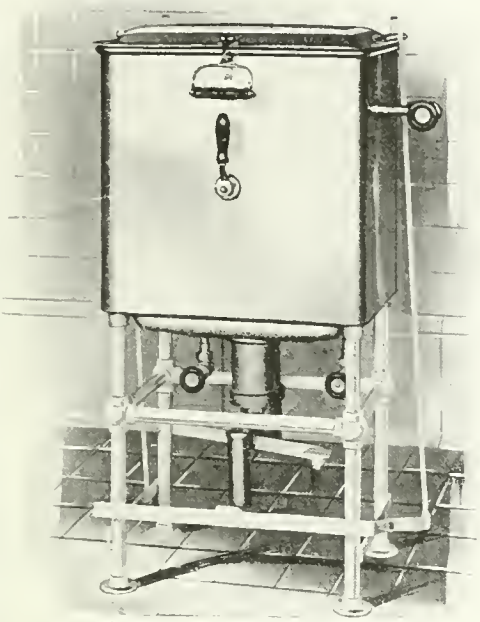
Sanitary history does not record the success of a single one of the many attempts to control by "general measures" an epidemic disease regarding which specific knowledge is not available, says Allen W. Freeman, M.D., state commissioner of health, Columbus, O., in a discussion of administrative measures against influenza, in the December issue of the *American Journal of Public Health*.

The papers read at New Orleans by Arthur Newsholme, M.D., K.C.B., on the "Historical Development of Public Health in England"; by L. L. Lumsden, M.D., on "Public Health Perspective"; by William H. Peters, M.D., on the "American Red Cross Crusade." "After Effects of Influenza in Cincinnati"; by D. B. Armstrong, M.D., on "Influenza Observations in Framingham, Mass."; and by J. W. Scherewsky, M.D., on "Needs and Methods of Coordinating Various Health Agencies in the Promotion of Industrial Hygiene," constitute a symposium on the most outstanding features of present health work.

"AMERICAN"

THE PRODUCT OF SPECIALISTS

BUILDINGS versus EQUIPMENT



Bed-Pan Sterilizer and Washer
Dumping Type

The reputation of an institution does not depend so much upon the character of the buildings that house it as upon its PERSONNEL and its WORKING EQUIPMENT.

Beyond a certain point anything that may be added to the exterior becomes an embellishment—beautiful but not VITAL.

Proper sterilizing equipment is vital.

Next in importance to the human element in any undertaking are man's mechanical aids. Doubly so is this true of the Surgeon's work.

"AMERICAN" sterilizers are built to be worthy of this important role. DEPENDABLE, EFFICIENT and EASY OF OPERATION—they have gained the front and have kept it. Investigate "AMERICAN" sterilizers and you will find that the secret of their success is HIGHEST QUALITY and LONGEST SERVICE.

AMERICAN STERILIZER COMPANY, Erie, Pa.

A POPULAR FOOD LINE

ARISTON FOOD PRODUCTS

are used by Hospitals and Sanitariums in all parts of the country

BECAUSE whenever used they are known for their purity and quality.

BECAUSE they supply a demand for wholesome, nutritious food products at a fair price.

BECAUSE they are manufactured by clean, sanitary methods, and only choicest ingredients being used.

A Few of Our Leaders

Our Teas and Coffees and Coffee-Cereal Blends are also leaders in beverage quality.

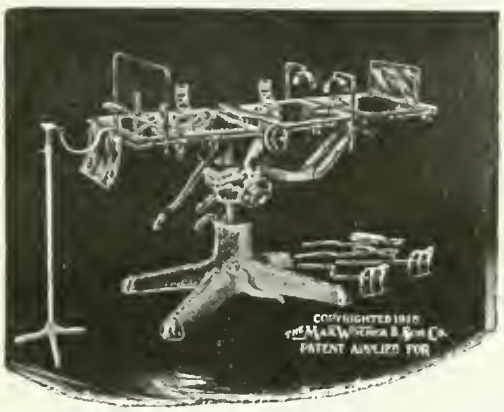
CALUMET TEA AND COFFEE COMPANY

409-411 W. Huron St. Chicago, Ill.

"Dealers direct with you"

The Cincinnati Pedestal Automatic Operating Table

Every Known Position Can be Obtained



Revolves, Elevates, Lowers, Tilts, Slants, Inclines

Is without slow operating gear wheels, but is controlled by fulcrum and locked with Locking Device Lever.

Write for complete description of this table. Our 27th edition catalog contains Modern Hospital and Office Furniture. Free on request.

THE MAX WOCHER & SON CO.

19-23 W. Sixth Street, Cincinnati, Ohio.

Thorner Brothers

Hospital Supplies and Aseptic Hospital Furniture

388 Second Avenue New York City

"One Quality and One Service—The Best"

Rubber Goods, Glassware, Instruments, Syringes, Brushes, Operating Tables, Cabinets, Stretchers, etc.

RED CROSS LEAGUE COUNCIL TO MEET

Henry P. Davison, chairman of the League of Red Cross Societies, has issued a call for the first meeting of the General Council of the league to be held at Geneva on March 2. Representatives of the twenty-eight countries which are members of the league will be present.

STEVEN MORRIS DIRECTS RESEARCH

At a meeting of the National American Research Society in Cleveland in December, formal plans were laid for research work by the National Anesthesia Research Society, under the direction of Steven Morris, of Philadelphia.

CHECK DISTRIBUTION OF NOSTRUMS

The city of Sacramento, Calif., has taken a step forward in a regulation which is calculated to prevent the free distribution of "remedies, nostrums, or proprietary medicines." They hope thereby to prevent self-medication on the part of the people and to make it impossible for drugs of this character to reach the hands of children.

CANADA PROVIDES FOR DISABLED SOLDIERS

The Dominion Government has paid out more than $150,000,000 in gratuities, has spent $57,000,000 for re-establishment of disabled soldiers, and will spend $50,000,000 more in putting disabled soldiers in positions where they can earn a living, according to a recent statement by G. E. Foster, Canadian Minister of Trade and Commerce.

COMMISSION FOR STUDY OF INFLUENZA

The Metropolitan Life Insurance Company has provided funds for the investigation of influenza. Work is already under way in Washington, New York, Boston, and Chicago. Investigation will be made into the prophylactic value of vaccines, and laboratory researches will attempt to discover the causes of such infection and the mode of transmission. The Commission appointed for this work consists of: G. W. McCoy, director of the hygienic laboratory, United States Health Service; Dr. W. H. Park, director of the research laboratory, New York City Department of Health; Dr. Lee K. Frankel, third vice-president of the Metropolitan Life Insurance Company; Dr. M. J. Rosenau, chairman, professor of preventive medicine and hygiene, Harvard Medical School; Prof. E. O. Jordan, of the University of Chicago; and Dr. W. H. Frost, of the United States Public Health Service.

PRECAUTIONS AGAINST LEAD POISONING

A survey with particular view to determining the extent of lead poisoning in potteries has just been concluded by the Office of Industrial Hygiene and Medicine of the United States Public Health Service, and their report as to the precautionary measures against the lead hazard in this industry is published in the December 19, 1919, issue of *Public Health Reports*.

The symptoms of lead poisoning are given, as are the common parts of entry in this industry. Workers are warned to eat before going to work, to drink milk between meals, and to drink only from covered vessels. Respirators are advised for dusty places, and prophylactic care as to workroom clothes. Directions are very explicit as to personal hygiene and ventilation. In its last analysis safety measures are chiefly for the advantage of the workmen and depend for their efficiency upon his strict personal adherence to the advice given.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors Alexander Lambert, M. D., S. S. Goldwater, M. D., *and* John A. Lapp, LL.D.
Managing Editor John A. Lapp
Editorial and Business Offices, 58 East Washington Street, *Chicago*

Volume 2. MARCH, 1920 Number 3

NOTES AND COMMENT

SPRING CONVENTIONS

FOUR conventions which will specially appeal to physicians, nurses, and social workers will be held in April in the South and Middle West. These five conventions combine more than a score of affiliated organizations which will meet at the same time and place.

The series includes the Conference of Social Work at New Orleans, April 14 to 21. The Health Section of the National Conference is always of high grade.

The Biennial Convention of the National Organization for Public Health Nursing will meet in Atlanta, April 12 to 17. The largely attended conferences of this association are assuming unusual importance with the tremendous growth of the profession.

The National Tuberculosis Association will hold its annual meeting in St. Louis, April 22 to 24. The enlarged program of this association will attract the interest of all of those attending this series of conventions.

The American Medical Association and allied associations meet in New Orleans, April 26 to 30. The greatly broadened and intensified public interest in medical matters this year has evolved issues of vital interest to the medical profession. The sectional programs are of unusual value. A large attendance at this meeting and a general participation in its deliberations by all members of these associations are urged.

The wide range of the affiliated organizations which are participating in these annual meets makes these conventions of real value to social workers as well as physicians.

PREJUDICE AND IGNORANCE

THREE news items of significant interest have come to the desk of the editor within a few days indicating that the battle of preventive medicine against ignorance and stupidity, which foster disease, is not yet completely won.

These items come from a wide geographical range. One announces the fact that a health officer in Delaware was forcibly carried out of a town and told to stay out, for doing nothing more than the promotion of sanitary and health measures. The second comes from Dallas, Tex., where an organization has been formed called the Public School Protective League to oppose vaccination against smallpox. The third comes from Springfield, Ill., where there has been introduced in the Constitutional Convention of the State a resolution guaranteeing freedom of medical practice.

If these incidents had been reported half a century ago they would have been passed by without comment, because of the common ignorance of the benefits of sanitary measures, vaccination, and regulated medical practice, but what can we say of the year 1920 when intelligent communities make an organized effort to oppose the most accepted of the doctrines of good health?

It appears that the incident in Delaware was backed by a large part of the population. The health officer himself was a capable and efficient official. Apparently he was too capable and efficient for the slow-going residents of that community. He was escorted unceremoniously from the town by a procession of automobiles filled with resident "witch-burners."

The second incident might be passed over as one of the sporadic efforts of the anti-vaccinationists except for the fact that the meeting appeared to have a considerable attendance and that proposals were made for a State and National Organization to stand, as the meeting declared, for "freedom of choice of medical treatment." It appears at the time the city of Dallas was experiencing something of an epidemic of smallpox and that the city Board of Education required vaccination. Much of the discussion, as reported in the press, appeared to be unworthy of comment, but the fact remains that a protest meeting against vaccination in the year 1920 was largely attended in a progressive city.

The third item calls for slight comment. Probably the constitution makers of the State of Illinois will not give serious attention to a proposal to fix in the basic laws the provision that there shall be no regulation of medical practice. The very idea is unthinkable in a matter of such vital concern as the health of the people. There should not be less but more stringent regulation to insure that those who safeguard our health and our lives should be of the highest competence.

These incidents serve to shake our optimism, but they should also serve as a counsel in the difficult task of bringing complete preventive medicine to the service of all men.

THE SERVICE OF THE DISPENSARY

MODERN MEDICINE begins in this issue the publication of a series of three articles from the survey of dispensaries made by the New York Academy of Medicine under the direction of Dr. E. H. Lewinski-Corwin, executive secretary of the Public Health Committee. These chapters are selected because of their particular interest to physicians. The titles are: "The Service of the Dispensary," "The Problem of Disease," and "Dispensary Patients."

A summary of the whole report was given in a recent issue by the *Journal of the American Medical Association*, sections on the organization, administration, and equipment are appearing in THE MODERN HOSPITAL, and still others will be published in the *Quarterly of the American Social Hygiene Association* and in the *Review of Tuberculosis*.

This study is one of the most important and far reaching ever made of dispensaries. The wide use of these institutions in New York City makes the findings of unusual value.

From the summary of the investigation it appears that there are in Greater New York 153 licensed dispensaries in which about 4,000,000 treatments are given annually. To encompass this amount of work, 3,680 sessions are held weekly, with about 8,000 hours of actual operation.

Eighty per cent of the patients came with complaints which required treatment in departments other than internal medicine. This means that a large part of the wage-earning class resorts to the dispensaries when in need of the services of specialists or special examinations and treatment for which they cannot afford to pay the private physician.

The study corroborates the findings of other investigations on the question of so-called "dispensary abuse." Two and two-tenths per cent of the patients were palpably taking undue advantage of the dispensaries; 79.4 per cent, because of their low economic status, were justified in seeking the dispensary for treatment; and the rest because they sought treatment which they could not get elsewhere at the prices they could afford to pay. This points to the need of pay clinics, and the committee suggests the adoption of a fee of fifty cents for such as are able to pay. This fee is within the reach of the majority of wage earners and would materially increase the present income of the dispensaries and enable them to provide necessary equipment, pay salaries to some or all of the physicians, and employ greatly needed clerical, nursing, and social service workers.

The committee found that in most of the institutions there was need of a clearly defined policy and of better executive direction. In the larger institutions it is felt that a full time executive should be employed.

No accurate figures were available as to the total amount of money invested in the dispensaries of New York City, nor were accurate figures to be had as to the cost of maintenance and administration. A conservative estimate, based on the reported expenditures for the year 1918 of thirty-four dispensaries in the United Hospital Fund, places the cost of maintenance and administration at $2,000,000 per year. Institutions representing such an investment and expenditure have a very definite responsibility to become institutions for efficient diagnosis and treatment, public health centers in their neighborhoods, and efficient training schools for doctors, nurses, and social workers, but thus far the New York dispensaries have failed to develop to the fullest extent their medical and educational opportunities.

In order to increase the efficiency of dispensaries, the committee cites some of the possibilities of efficient organization, and recommends reduction in the length of the period patients must wait prior to admission to the clinic. This can be

accomplished by a system of appointments, the feasibility of which has been demonstrated by the American Red Cross Clinic for Children at Le Havre, or by the principle of limitation of numbers. The application of either of these principles will not only reduce the waiting time of the patient but will prevent the swamping of clinic physicians with numbers of patients whom they cannot treat efficiently.

The committee deprecates the assignment of patients to different departments by lay registrars and, except where the diagnosis is obvious, recommends that a diagnostic division be organized to which patients may be referred for examination and assignment to the appropriate department.

To give patients the greatest benefit from medical skill, the equipment of dispensaries with all modern facilities for doing accurate diagnosis and efficient treatment is recommended. Reduction of the number of clinics and their re-grouping may sometimes help to improve the methods for assigning patients.

To retain the sustained interest of physicians, a medical organization correlating the dispensary service with that of the hospital in such a way as to give the younger physicians an opportunity for advancement is recommended. In detached dispensaries it is recommended that arrangements be made with medical schools for organizing post-graduate instruction in order that the whole field of clinical work of the city may be permeated with the spirit of research and teaching, and in order that all existing facilities may be put to the most useful purposes.

Adequate medical records are regarded as essential to good work and the scientific use of clinical material. The committee, however, found that adequate physical examinations were recorded in less than one-fifth of the cases treated in the dispensaries investigated. The more general use of the clinic secretary for the smooth and expeditious running of the clinic is recommended.

Investigations revealed an inadequate nursing personnel in the dispensaries, and to remedy this situation the committee recommends that more of the dispensaries connected with hospitals adopt the plan inaugurated in some institutions where a part of the course in the training schools for nurses is devoted to dispensary work, the course being so arranged that each of the pupil nurses has several months' experience in the dispensary under a head nurse.

The committee recommends that a Social Service Department be incorporated in the ad-

DR. ELMER E SOUTHARD OF HARVARD DIES OF PNEUMONIA

Dr. Elmer Ernest Southard of Cambridge, Mass., assistant professor of psychology at Harvard University and Bullard professor of neuropathology at the Harvard Medical School, and an eminent psychiatrist, died of pneumonia, February 8, at the Hotel Prince George, New York City.

Born in Boston, July 28, 1876, Dr. Southard attended Harvard University, receiving his A.B. degree in 1897; his M.D. degree in 1901; and an A.M. degree in 1902. He also attended Sneckberg Institute at Frankfort and the University of Heidelberg in 1902. He received the honorary degree of Doctor of Science from George Washington University in 1917. Just before his departure and also upon his return from abroad he was an intern and assistant in pathology in the Boston City Hospital, and was later visiting pathologist in the same institution. In 1904 he became instructor of neuropathology and was an assistant professor in the Harvard Medical School.

Dr. Southard was made Bullard professor in the Harvard Medical School in 1909. From 1903 to 1909 he had been assistant physician and pathologist in Danver's State Hospital for the Insane, and since 1909 was pathologist to the Massachusetts Commission on Mental Diseases. Since 1912 he had been director of the Boston Psychopathic Hospital, and at the time of his death was a director of the Massachusetts Psychiatric Institution at Boston.

Dr. Southard was assistant editor of the *Journal of Nervous and Mental Diseases*, *The Psychiatric Bulletin*, and *The Journal of Clinic and Laboratory Medicine*. Among his books were "Neurosyphilis," written in collaboration with Dr. H. V. Solomon; "Shell Shock and Neuropsychiatry," and the "Weekly Research Papers," which were written in collaboration with Dr. H. E. Fernold. He contributed to many periodicals and published an account of his researches at the Danvers State Hospital for the Insane. During the war he was a Major in the Chemical Warfare Service and also chairman of the Committee on Psychiatry and Neurology of the National Research Council.

In addition to being a director of the Bedford Hills Laboratory Bureau of Social Hygiene, Dr. Southard was a member of the American Academy of Arts and Sciences, the Association of American Physicians, the Massachusetts Medical Society, the American Neurology Association, the American Association of Pathologists, the Society of Experimental Biology, the American Psychopathol Association, the New England Psychiatric Society, the Boston Society of Psychiatry and Neurology, the National Epilepsy Association, and the American Genetic Association. He was formerly president of the American Medico-Psychological Association, and at the time of his death was president of the Boston Society of Psychiatry and Neurology.

He is survived by his widow, Dr. Mabel Austin Southard, a lecturer at Wellesley College, his mother, Mrs. Martin Southard of Boston, two sons, Austin and Ordway, and a daughter, Anne.

ministrative plan of the dispensaries and calls attention to the need for a concentration of effort on the part of all who are interested in social service work to secure a crystallization of function and procedure.

TWENTY-FIVE YEARS OF DIPHTHERIA SEROTHERAPY

A TIMELY review of the twenty-five years' use of diphtheria antitoxin in the reduction of diphtheria mortality appears in a recent *Bulletin of the Paris Academy of Medicine*.[1] The author reminds us it was on September 7, 1894, that Roux presented his famous *mémoire* on the value of serotherapy in the treatment of diphtheria before the International Congress on Hygiene and Demography at Budapest. Roux had reported on 300 patients with diphtheria who had received the antitoxin to the exclusion of all other forms of treatment and his results appeared so clear and so conclusive that he left a definite conviction of its efficacy among those who heard him.

The author recounts the successes of diphtheria antitoxin during the past twenty-five years and rapid spread of its use, and offers a word of hope for a further reduction in diphtheria mortality by an extension of the use of antitoxin.

Previous to the administration of antitoxin, the mortality from diphtheria was from 50 to 100 per 100,000, but these figures have been reduced to from 10 to 20 per 100,000 by the use of the anti-diphtheretic serum. The best results have been obtained in those countries and cities having the best developed health organizations where the antitoxin was distributed and administered most frequently.

Reference was made by Rous[2] to the cases of 3,971 children treated for diphtheria at the Children's Hospital in Paris between 1890 and 1893. Of this number, 2,029 died, making a case fatality of 51.75 per 100. Of those children receiving antitoxin treatment between February 1 and July 24, 1894, the case fatality was only 24.5 per 100. During the five years of war there were only 378 deaths among 15,271 cases of diphtheria treated in French army hospitals outside the war zone. This is equivalent to a fatality of 2.64 per 100. In the war zone there were 229 deaths among 11,433 cases representing a case fatality of only 2 per 100.

May we hope for even better results from the use of anti-diphtheretic serum? It is believed that by the prompt administration of antitoxin in the early hours of the disease, and by the use of this serum in suspicious cases even before confirmatory bacteriological evidence is available, that the mortality from diphtheria can be further reduced. In the past insufficient attention has been paid to the detection of carriers among convalescents. Patients should not be released from quarantine until nose and throat examinations no longer show the presence of the diphtheria bacillus.

A forward step in increasing the efficiency of antitoxin treatment has been the use of the intramuscular and intravenous methods of administration with the consequent saving of the most severe cases of the disease. Fear of acute anaphylactic reactions has been largely dispelled by the harmless use of repeated injections.

JULES SCHEVITZ.

1. Bull.d. l'Acad. d.Paris, 1919, lxxxii, No. 31.
2. Office Internat. d.'Hygiene Publique, 1919, xi, No. 11.

EMASCULATION OF OHIO HEALTH LAW

REFERENCE has been made in these columns on several occasions to the admirable Hughes act, passed last year in Ohio, which divided the state into 110 districts and provided for the appointment under the Civil Service of a full-time health officer and a public health nurse for each district. A technical legal decision brought the act once more before the Ohio Legislature for a necessary minor amendment; and the occasion was unfortunately utilized to substitute a wholly different bill, which permitted the health officers to serve on part time and removed them from the protection of the Civil Service law. The 276 applicants for the positions originally contemplated have been notified not to appear for oral examination and Ohio abandons her brief preëminence in the field of public health legislation. The principle remains, however, even though the experiment fails. The Hughes act will no doubt serve as an inspiration to other states which really desire to protect their citizens from preventable diseases.

INDUSTRIAL PHYSICIANS' MEETING

THE annual convention of the American Association of Industrial Physicians and Surgeons convenes at New Orleans on April 26 and 27 for a two-day session. A strong program is being arranged. The increased interest in the field of industrial medicine and surgery and the large growth in membership enlarges the importance of each successive convention. Industrial physicians will doubtless utilize the opportunity of attending the conventions on social work and tuberculosis and the medical association in New Orleans and St. Louis, held contemporaneously.

THE UNTILLED FIELDS OF PUBLIC HEALTH*

By C.-E. A. WINSLOW, Dr. P.H., Professor of Public Health, Yale School of Medicine, New Haven, Conn.

A SHORT time ago two Yale undergraduates came to my laboratory to consult me in regard to the choice of a career. One of them was the son of a public health administrator of the highest eminence; and they particularly wanted to know something about the field of public health, what it included, what was the nature of the work involved, what were the qualifications required, what the financial rewards, and the more intangible emoluments to be expected by those who might enter upon this career. I told them what I could of the current tendencies which to me seem to make public health one of the most stimulating and attractive openings lying before the college student of the present day; but I found that the answer to their question was by no means a simple one to formulate. The public health movement has been expanding so rapidly that what was "the new public health" fifteen years ago includes only the more conventional interests of the present day.

Public Health is the science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual a standard of living adequate for the maintenance of health; organizing these benefits in such fashion as to enable every citizen to realize his birthright of health and longevity.

It seemed to me as I talked with these young men that we need a formulation of current tendencies in the protean field of public health, and an outline of the lines of future development so far as they can safely be forecast. It is essential that the worker in this domain of applied science should see clearly the goal toward which he is aiming, however far ahead of the immediate possibilities of the moment it may appear to be. Above all, it is desirable that we should have a definite and inspiring program to lay before the young men and women of the country who hesitate in the choice of a career. On every hand we hear the question put by an eager young woman to the brilliant head of the Instructive District Nursing Association of Boston: "Miss Beard, I want to go into public health. What is it?" It behooves us to answer this question; for the greatest of all needs in this field is undoubtedly the need of a personnel, larger in quantity, and better in quality, than that which has been available in the past.

For these reasons I have determined to devote my address as retiring chairman of the Section on Physiology and Experimental Medicine to a tentative, if necessarily imperfect, formulation of the scope and tendencies of the modern public health campaign.

I spoke of the public health movement as protean, and it is indeed true that the emphasis in this field has shifted with a rapidity almost phantasmagoric.

To a large section of the public I fear that the health authorities are still best known as the people to whom one complains of unpleasant accumulations of rubbish in the back yard of a neighbor,—accumulations which possess those offensive characteristics which somehow can only originate in a neighbor's yard and never in one's own. Sanitation, the maintenance of cleanly and healthful environmental conditions, does indeed represent the first stage in public health. When Sir John Simon initiated the modern public health movement in London three-quarters of a century ago, his primary task was the elimination of the masses of accumulated filth which kept alive the pestilences of the Middle Ages. When General Gorgas undertook the task of making safe and feasible the building of the Panama Canal, he was in the same way confronted with problems that were primarily those of environmental sanitation. The removal of excretal wastes, the purification of sewage, the protection of water supplies, and the elimination of conditions which permit the breeding of insect carriers of disease, —these are always and everywhere the first tasks for the public health expert; and in the early phases of the public health movement in any country it is natural to visualize public health, primarily in terms of sanitation.

There is still much to do in this most fundamental branch of public health. That terrible

*Read before second annual meeting of the American Association for the Advancement of Science, St. Louis, Mo., January 2, 1920.

scourge of the Middle Ages, typhus fever, was only held in check during the war by a systematic and organized attempt to control the louse which carries the parasite of this disease; while the infection of bubonic plague, the black death of the Middle Ages, has spread broadcast throughout the world during the past twenty-five years, and has been conquered only by the vigorous eradication of the rats, ground squirrels, and other rodents which harbor the germ of this peculiar pestilence. The control of malaria, which takes a heavy toll of strength and vitality from the populations of our southern states and is estimated to cost the nation over $100,000,000 a year, is one of the mightiest tasks which confronts the sanitarian, but a task which, as the demonstrations conducted by the International Health Board have made clear, is easily within the range of practical accomplishment by means of systematic drainage and other measures taken against the mosquitoes which carry the germs of this disease. Malaria is with us always, but there are many maladies which, like yellow fever, arise from endemic foci in certain particular regions of the globe, and thence spread wherever the steamship and the railroad train can carry their inciting causes. Of recent years the bold idea has suggested itself of undertaking an offensive against these primary endemic foci of disease without waiting until the invaders cross our own national boundaries. In this way General Gorgas has carried the war against yellow fever into the enemy's own country at Guayaquil, and an organized campaign against such diseases on a basis of world cooperation, perhaps through the agency of the International Red Cross, is full of promise of achievement in the future.

There is much then to be done in the field of environmental sanitation; yet as the public health movement progresses the tasks of sanitation in the narrow sense are gradually accomplished and therefore become relatively less important. Constant attention is, of course, required to maintain the environment in a healthful condition; but in most civilized communities, in temperate climates, environmental sanitation has become a matter of routine, and the pestilences spread by polluted water and by insect carriers have ceased to figure as important factors in the death rate.

Control of Community Infections

As the aims of sanitation are approximately realized in a given community the attention of the health official turns from the water-borne and insect-borne diseases to the more subtle and more baffling maladies that are spread by direct contact from one individual to another. As typhoid, cholera, plague, and typhus fever approach the vanishing point, measles, pneumonia, and influenza became relatively more and more important. The control of community infections tends to replace the sanitation of the environment in the first rank of public health problems. The predominating tasks in this phase are tasks for the bacteriologist rather than for the engineer.

The leaders of the public health movement in the United States fifteen years ago were concerned primarily with problems of this sort. Their interest lay in the detection of incipient cases and of well carriers,—those individuals who while in normal health themselves, are cultivating and distributing from their bodies the germs of specific communicable diseases; in isolation, in bedside disinfection, in the breaking by any possible means of the vicious circle which transfers the discharges of the infected individual to the mouth or nose of the susceptible victim.

Artificial Immunity Effective

In the case of certain of the acute communicable infections we are fortunately able to invoke the use of another weapon against our microbic enemies by the prophylactic or therapeutic use of vaccines and immune sera and, so far, the production of artificial immunity against attacks of the microbes of disease has proved on the whole more effective than attempts at breaking the chain of contagion by isolation and disinfection. Smallpox, for example, has dwindled from the position of the chief pestilence menacing the human race to almost the condition of a medical curiosity, a result solely and directly of the use of vaccine. Typhoid fever has been eliminated from the army by an analogous procedure. Antitoxic serum has placed the control of diphtheria within our grasp, and diphtheria persists as a cause of death simply because of the failure to recognize the disease with sufficient promptness and to apply the protective measures at our disposal.

In general this second or bacteriological phase of the public health movement, while it can boast such remarkable achievements as those to which reference has just been made, is still far from the complete success which has attended the applications of environmental sanitation. It may be stated with some confidence that there is not one of the diseases originating in the non-living environment which we do not know how to control and which it is not entirely practical to control, given adequate funds and adequate personnel. Before some of the contact-borne diseases, on the other hand, we still stand almost helpless. We may be able to reduce the death rate from pneu-

monia by the use of protective vaccines, but there has been as yet no actual victory won sufficiently clear to admit of statistical demonstration. We can do much to mitigate the after effects of infant paralysis, but we have no effective method of controlling its spread. Before the ravages of a pandemic of influenza, such as swept the world in 1918, we are still practically without defense. Sanitarians have been accustomed to quote with horror the fact that bubonic plague killed 6,000,000 people in India during a period of ten years. Influenza carried off more than this number of persons in India in the four autumn months of 1918, and if it should recur again next year we should still be powerless to help.

Life Saving Health Officers' Task

There is much, then, to be done in the field of the community infections; many problems are yet to be solved by the bacteriologist and serologist before this group of diseases will pass under our control. Yet the suppression of community infections, like the sanitation of the environment, is but a part of the broad public health movement of the present day. The task of the health officer is to save lives, and to save as many lives as possible, by the intelligent application of the resources placed at his disposal. If he be wise he will direct his energies and his appropriations according to the indications derived from a study of vital statistics. He will apply his resources at a point where the greatest number of lives can be saved with the least expenditure of effort. From this standpoint there are two aspects of the public health program which tend, and rightly tend, to overshadow all the rest,—the campaigns against infant mortality and tuberculosis. These are the two lines of endeavor which promise the largest results in actual life saving; and in both these fields of effort the part played by sanitation and bacteriology in the narrow sense is a relatively small one. We can reduce infant mortality by the pasteurization of milk, by the elimination of flies, and by the protection of the baby from contact with infected persons; but these are, after all, incidents in a broad program which involves the education of the mother in the whole technic of infant care, feeding, clothing, airing, and bathing. What we are really aiming at is a reform in personal hygiene.

The campaign against tuberculosis offers another illustration of the same general principle. We can do something by providing a sanitary environment in which the worker is protected against vitiated air and harmful industrial dusts. We can do something by the control of the careless consumptive and the consequent reduction of the menace of specific infection. Our main weapon against tuberculosis is, however, again, the weapon of personal hygiene. The principal machinery upon which we rely is designed to detect the early case and to impose upon the individual in the home or in the sanatorium a regimen of daily living that will make it possible for his own tissues to wage a winning fight against the invading microörganisms. Once more, the problem is primarily a problem in the personal conduct of the individual life, and we see the teacher of personal hygiene emerging as a supremely important factor in the present day campaign for public health.

According to the Director of the Census the five principal causes of death in the Registration Area of the United States for 1916 with the number of deaths caused by each were as follows: Heart diseases, 114,000; tuberculosis, 101,000; pneumonia, 98,000; Bright's disease, 75,000; and cancer, 58,000. Of these five causes of death there are two, pneumonia and tuberculosis, in which the sanitation of living and work places, the isolation of the infected individual, and in the case of pneumonia, the use of sera and vaccines, do play an important part. Even with tuberculosis and pneumonia, however, education in personal hygiene fills a large place in the modern preventive campaign. Heart disease and nephritis may, of course, often be the end results of bacterial infection; but the immediate problem of their control is not to be sought along conventional sanitary and bacteriological lines. In the past they have indeed been considered as beyond the range of control measures of any kind. With these diseases, too, it seems clear, however, that education in personal hygiene offers large possibilities of effective results. If the weakness of the heart or arteries be known in time, the adoption of proper rules for daily living can at least postpone the fatal result, if it cannot successfully effect organic cure.

It is for these reasons that the public health campaign of the present day has become preeminently an educational campaign. There are those who maintain that because the public health authority alone possesses the power to enforce regulations with the strong arm of the law, such authorities should confine themselves to the exercise of police power, leaving educational activities to develop under the hands of private agencies. The actual amount of life saving that can be accomplished by purely restrictive methods is, however, small and such exercise of police power as may be necessary can only gain in effectiveness if it forms an integral part of a general campaign of leadership in hygienic living.

We have now added to the function of the sanitarian and the bacteriologist that of a new figure in the public health campaign, the teacher of personal hygiene; but we cannot stop here if we are prepared to follow the courageous public health official in his determination to adopt whatever machinery may prove necessary for the saving of a maximum number of lives at a minimum cost.

Education in personal hygiene is in part a general propaganda applicable to all alike. There are certain fundamental principles as to food, fresh air, exercise, and rest, which every one should know in order to manage wisely the delicate physical machine entrusted to his charge. Unfortunately, however, each living machine is in some respects different from every other living machine, and in many cases deviations from the normal are so marked that they demand fundamental modifications in the regimen of daily life. The man with the weak heart needs less exercise, the man with weak lungs more air and more rest, the man with diabetes a special kind of food. In addition to the hygiene for the normal, which we may teach to all, there is a hygiene for the abnormal which requires an adaptation to each specific case. But it is obvious that the teaching of this kind of hygiene demands first of all an individual diagnosis. We are here face to face with the problem of the relation of the physician to the modern public health campaign.

Arbitrary Lines Being Obliterated

In the past a sharp line was drawn between the measures taken by public health authorities to check the spread of epidemic disease and the daily routine of the practitioner in the treatment of the individual case. The first was public health, the second private medicine. With the passing of every year it becomes harder to draw such a sharp line, more difficult to say where public health should end and private medicine begin. The history of medical school inspection offers an excellent example of the tendency to obliterate such arbitrary lines. The physician was first sent into the schools in Boston in 1894 to perform a definite police function,—to detect cases of communicable disease and by so doing to protect one child against the danger from another. If it had been proposed at that time to organize clinics for free treatment of disease among school children, the proposal would probably have been denounced as socialism of the most dangerous kind. Just so soon, however, as the physicians began actual work in the class room they found that acute infections, passing from one individual to another, played but a small part in the total burden of preventable disease borne by the children in the schools. They found defects of teeth, defects of vision, defects of hearing, enlarged glands. Nine-tenths of the time of the school inspector of today is devoted to defects of this kind. He is no longer protecting one child against another. He is helping each child to attain its maximum possibilities of health and efficiency.

School Nurses as Health Agents

The discovery of non-contagious physical defects was the first step in bringing the public health movement into intimate contact with the individual child. Very soon, however, it became evident that the detection of remediable defects was of little value unless something was done to remedy them, and the school nurse was drafted into service to follow the child into the home and to persuade the parents to take the measures indicated by the medical examiner's report. The development of a school nursing service as an educational agency of this sort resulted in New York City in increasing the proportion of defects actually treated from 6 to 80 per cent. In a certain number of cases, however, a new difficulty arose. Remediable defects were present and the parents were willing and anxious to have them treated, but they were without funds to pay for the special medical care that was needed. The next step was as logical as the preceding ones. It involved the establishment of school clinics for the treatment of children unable to obtain the necessary care in any other way. So, with the establishment of nose and throat clinics, eye and ear clinics, and dental clinics for the school child, the obliteration of the line between public health and private medicine was well-nigh complete.

If it is good public policy to provide for the school child whatever machinery is necessary to make possible the attainment of a reasonable standard of physical health, it is difficult to see why the same arguments do not apply to the adult as well. As a matter of fact, exactly the same tendencies to provide (1) diagnosis, (2) hygienic advice, (3) treatment when necessary, are already manifest in our tuberculosis clinics and our venereal disease clinics, and are beginning to develop in connection even with diseases of the heart and arteries and cancer. If it is sound economy to provide for the early diagnosis and sanatorium treatment of tuberculosis, it is just as sound to provide for the early diagnosis and surgical treatment of cancer. The two diseases are equally dangerous and equally burdensome to the community; they are equally preventable if the right educational and clinical procedures are organized for their control.

From both sides of the artificial boundary line

between public health and private medicine comes the appeal for a closer correlation. The public health worker needs the physician because in so many diseases education depends on diagnosis and demands the application of medical skill. The farsighted physician is equally eager to link up his science with the public health program, because on his side he realizes that medicine can never attain its full potentialities of service unless it is made really preventive, through some type of effective professional and social coordination. It is a striking fact that in spite of the great advances in medical science, diseases like heart disease and nephritis and cancer, which have been handled in the past along strictly medical lines, have shown no decrease comparable to that which has been manifest in the group of maladies with which the sanitarian has dealt. This is not because medical science is helpless, but it is because medical knowledge has generally been applied only when disease has gone so far that the damage is irremediable. Medical knowledge will be highly effective only when applied in the incipient stages of disease. When this comes to pass, "preventive medicine" will become a reality and not merely a catch word.

How to Obtain Expert Service

It is not for us to say today in just what fashion the reorganization of medical service which will make it effective for prevention can best be brought about. In the working out of such a scheme there must be, first of all, within the profession itself, effective coordination of specialties in clinical and laboratory lines to provide the type of expert service which is furnished by our best hospitals and which no individual private practitioner can possibly supply. In the second place, such organized medical care must be made available not merely for the very poor and very rich, but for the entire community, for those who can afford to pay the whole or a part of the cost of the service they require, and for those who cannot pay at all. Finally, if medical care is to be made really preventive in its application, its cost must be so distributed as to encourage systematic recourse to the physician as an agent for the detection and control of incipient disease, rather than as a last resort when illness has become too grievous to be borne.

There are those who believe that these ends may be attained through group medicine, and it is interesting to notice that very similar ends have actually been reached in the nursing field through private initiative as manifested in our best visiting nurse organizations. There are others who claim that medical and nursing service can best be provided in connection with a plan for sickness insurance; and there are still others who urge that the insurance problem should be handled as a distinct and separate one, and that the early diagnosis and preventive care of incipient disease should be attained through a definite system of state medicine.

The working out of the best plan for securing such ends as these is a fascinating task for the publicist of the future, and it is quite possible that the problem may be solved in true Anglo-Saxon fashion by no single logical procedure but by diverse methods, suited to local ends and local circumstances. The remarkable developments during the past ten years in the field of industrial medicine may have a wide bearing on the general solution of our problem as a whole. Some 900 different industrial establishments employ at this time 1,500 industrial physicians; and the plant hospitals under their charge, from first aid dressing stations, are developing into educational centers, diagnostic clinics, and laboratories for the study of industrial physiology and vocational guidance and rehabilitation.

Health Related to Economic Level

We have seen the emphasis of the public health campaign move steadily inward from the environment to the individual. The primary interest of the health officer has been transferred from the swamp and the dung heap to the control of community infections and thence to the detection of non-contagious physical defects and the hygienic guidance of the individual living machine.

In the development of the public health campaign to the realization of its fullest opportunities there is taking place today a swing of the pendulum backward to a new interest in the environment, but an environment of a nature very different from the simple environment with which Simon dealt. General Gorgas, at Panama, fully grasped the significance of the wider and more subtle environment which most of us are just beginning to glimpse as an essential problem in the public health campaign. He eliminated yellow fever and malaria by the drainage of marsh lands, but he attempted to deal with pneumonia by raising the wages of the employees upon the Isthmus; for he realized that in the case of this and many other diseases the most effective weapon at our disposal is the building up of general vital resistance, which depends upon the maintenance of a satisfactory social and economic level.

Dr. Emmett Holt has said that there are two causes of infant mortality,—poverty and ignorance. In the infant welfare movement, the anti-tuberculosis campaign and every other field of

public health, we come sooner or later to a realization of the fact that education and medical and nursing service, while they can accomplish much, cannot cope successfully with the evil effects of standards of living too low to permit the maintenance of normal physical health.

As I have elsewhere pointed out, in the Johnstown survey Miss Duke tells us that the infant mortality in one ward was 271 deaths per 1,000 births, against 134 for the city as a whole, and 50 for the ward which showed the lowest rate, and the explanation is that "This is where the poorest, most lowly persons of the community live—families of men employed to do the unskilled work in the steel mills and the mines." Dr. Sydenstricker and his associates in the United States Public Health Service, in a report on the relation between disabling sickness and family income among cotton mill operatives in South Carolina, find that a monthly income equivalent to less than $12 per person, on an adult male unit basis, the sick rate was 70.1 per 1,000; with an income between $12 and $14 it was 48.2 per 1,000; with an income between $16 and $20 it was 34.4; and with an income of $20 and over it was 18.5.

We can conclude from these figures and from many similar investigations that poverty and sickness are closely correlated. We cannot conclude that the poverty is responsible for the excess of sickness. In some instances the relation of cause and effect may be reversed. In other cases both poverty and disease may be due to underlying inheritance. People do not usually live in the poorest quarters of a city or work at is underpaid employments by choice or by accident. In general, and on the average, we shall find in such districts and such employments a concentration of tuberculous stock, of alcoholic stock, of feeble-minded stock,—poor protoplasm and a bad environment supplementing each other in a vicious circle.

No one can perhaps tell just how far poverty in such cases is the real and effective cause of the failure to achieve and maintain a normal standard of physical health. It is clear, however, that there is a certain standard of income below which the maintenance of health is impossible; and it seems reasonably sure from the studies of Royal Meeker of the United States Bureau of Labor Statistics that a certain not inconsiderable proportion of the population of the United States has today a family income below that figure.

If an initially normal family cannot gain a livelihood adequate for its minimum physical needs, there is evidently a problem of social readjustment which our nation must face as a fundamental of post-war reconstruction; but what shall we say of the family which on account of inherent physical or mental defects is unable to reach a minimum level under a wholly fair and equable basis of compensation? There are but two alternatives as I can see it, since the moral sense of mankind repudiates the rigorous application of the principle of unhindered natural selection. We can let the combination of defective protoplasm and crippling environment accomplish the major portion of its work and then salvage what we can from the wreck by some form of institutional relief; or we can apply our social energy and our community funds to make good the deficiencies in the beginning. I have little doubt as to which will be found in the long run the cheaper way, and I am quite certain that the preventive method will prove more conducive to a high national morale.

The canker of disease gnaws at the very root of our national strength. The sufferers are not few or insignificant. They are the bread winners for at least a third part of our population. That they have causes of disease indolently left to blight them amid their toil. . . . is surely an intolerable wrong. And to be able to redress that wrong is perhaps among the greatest opportunities for good which human institutions can afford.—Sir John Simon.

If the foregoing outline of the problems of public health be accepted as correct, it will be obvious that the field as thus visualized is no small and restricted one. The claim to so large a province will be denied by many, within as well as without, the public health profession. The logic of the situation and the tendencies of social development are, however, sweeping the public health movement forward to a future of wider possibilities than those dreamed of by its own protagonists. If we are looking to the future, we must conceive our subject in terms no smaller than those of the following definition.

Definition of Public Health

Public health is the science and the art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and

nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health.

Public health conceived in these terms will be something vastly different from the exercise of the purely police power which has been its principal manifestation in the past.

Even today it is still possible to make an effective argument for increasing health department budgets by showing that appropriations for the protection of health are in most cities far less than those which are made for police and fire protection,—matters of far less moment in actual possibilities of community service. As a matter of fact, the police department and the fire department furnish criteria much too modest for the public health department of the future. It is rather to education that the possibilities of public health should be compared. I look to see our health departments in the coming years organizing diverse forms of sanitary and medical and nursing and social service in such fashion as to enable every citizen to realize his birthright of health and longevity. I look to see health centers, local district foci for the coordination of every form of health activity, scattered through our cities, as numerous as the school houses of today and as lavishly equipped; while the public health services of the city and state will constitute a corps of experts comparable in size and influence to the great educational organizations of the present day.

Specialties Which Contribute

In the development of the public health campaign of the future along such lines as these it is obvious that many different experts, of fundamentally distinct training, must contribute their special resources to the common task. Ignoring all minor specialties, there must be at least the following seven types of highly qualified persons in this field: the physician, the nurse, the bacteriologist, the epidemiologist, the engineer, the statistician, and the social worker.

In addition there must be inspectors to supervise sanitary conditions, housing conditions, food stores, and the like, for whom no special training is provided anywhere in this country, but who should be offered brief practical courses to fit them for the relatively modest duties which their task entails. Finally, there is the administrator who organizes and develops the work of all the rest.

The physician in the public health field practises medicine, but with a difference, in that the goal before his eyes is prevention as well as cure, and that he has always in view not merely the individual but the community as well. In the infant welfare station and the school clinic and the tuberculosis dispensary he visualizes not merely the individual case, but its family environment and its physical background. He is constantly striving to find the incipient causes of disease and to deal with those causes before they reach their deadly fruition. He must be much more than a physician in order to fulfill this task; for he must have a knowledge of bacteriology and sanitation, of health administration and statistics; above all, of social relationships and social machinery which the curriculum of even the best medical schools cannot attempt to supply.

Health Nurse Must Be Health Teacher

So the public health nurse must be a trained nurse skilled in the relief of suffering and the bedside care of the sick, but she must be much more. Her work is primarily that of the health teacher, the messenger who carries into the home and interprets to the individual mother the gospel of good health. She must work largely alone, not under the immediate direction of a physician. She must know her bacteriology and her physiology, her sanitation and hygiene, well enough to teach their principles to others; and she, too, must deal with the individual, not merely as an individual, but as an element in a complex social group.

The bacteriologist in the laboratory and the epidemiologist in the field are two more of the specialists needed, whose work is concerned primarily with the war against the community infections. The former offers aids in early diagnosis and prepares sera and vaccines for the prophylactic and therapeutic treatment of these diseases; the latter, by his detective work, makes it possible to trace out the subtle pathways of infection by which they spread from one person to another through the complex web of community life.

The public health or sanitary engineer is again an engineer *plus*. He must have mastered the underlying sciences of physics and chemistry, of structures and hydraulics; and he must also be familiar with the technical applications of his art to the particular problems of sewage disposal and water supply, ventilation, illumination, and the like.

The statistician correlates and analyzes the records of births, deaths, and illnesses, keeping an expert finger, as it were, on the pulse of the nation's health. His work is the bookkeeping of public health, indicating the lines of profitable

expansion and furnishing us with the credit balance of lives saved to the community as a result of various public health endeavors.

In the case of each of these experts, and in the case of the social worker who is operating in the field of public health, there is required sound elementary education in some fundamental branch of science, with the addition of specific training in its applications to the field of public health. For the nurse who desires to become a public health nurse there are offered four-month and eight-month courses of special training in public health nursing. The physician who desires to become a public health physician, the engineer who desires to become a sanitarian, the bacteriologist who desires to become a public health bacteriologist, the social worker who desires to apply a fundamental knowledge of the principles of social readjustment within the field of public health, must similarly undergo a special training if their services are to be made promptly and fully available. It is for this purpose that our leading universities and technical schools offer the Certificate in Public Health, which, like the Master's degree, is the equivalent of a year's graduate study. The Certificate in Public Health course gives to the medical graduate the special training needed to equip him for the application of medicine in the field of public health, and in the same way enables men and women who have had college training in the fundamentals of bacteriology, engineering, sociology, or statistics to fit into their special places in the general scheme of health protection.

Medical and Public Health Training Advantageous

To turn from these special phases of the public health campaign to the organization of the movement as a whole, it seems probable that the ideal public health administrator of the future will be the man or woman who has been first medically trained and has then specialized in a school of public health. If I am right in my belief that the public health movement of the future will go far in the direction of including medical and nursing service within its ample bounds, it is clear that a man who has both a medical and a public health training will possess peculiar advantages as an administrator. It is for this reason that the principal eastern universities offer the highest degree in this field, the Doctor of Public Health, only to medical graduates, and require that it be earned by a rigorous course of two years of academic study.

It will be long, however, before the supply of doctors of public health is nearly adequate to the demand, and for some time to come administrative positions, as well as laboratory and statistical positions and those concerned with social reorganization, will be open to the college man or woman who devotes a single graduate year to study for the Certificate in Public Health.

It can be said with very literal truth of the field of public health today that the harvest is ready and that the laborers are few. On all hands there comes to us the call for bacteriologists and statisticians, for industrial physicians, and school physicians, for public health nurses, and for health officers. The American Red Cross is inaugurating a nation-wide campaign for the development of health centers throughout the country. Each one of the thousands of health centers to be started under this plan will call for an expert personnel, which does not exist at present.

Health Work Offers Career

The science and the art of public health have progressed to a point where they can render to the public a service to be measured in the saving of hundreds of thousands of lives in this country every year. Public authorities and private agencies from one end of the land to another are realizing these possibilities of service and are ready to provide the necessary funds and to give the necessary powers to properly qualified experts. The lack in the whole scheme of things at the present moment is the lack of personnel. As a prominent official of the Rockefeller Foundation said to me the other night, "The way they are appropriating money for public health in the southern states frightens me, because we haven't the men to send to them to help them spend it wisely." We stand, I believe, at the beginning of a new phase of human history, a phase in which the physical and mental health and efficiency of the human being will be transformed by science as the physical background of civilization has been transformed in the past half century. In the name of the need that confronts us for the personnel to carry on this work, I believe we have the right to say boldly to the college men and women of America that we need them in this great business. We can promise to the college graduate, whether his leanings be toward work in the laboratory, toward sanitation in the field, toward the tasks of social propaganda and social reconstruction,—we can promise to the medical student,—and we can promise to the graduate nurse,—that each and all of them will find in the public health movement of the future careers which will compare favorably in security and in material rewards with the average return which is won by the college and medical graduate in

other fields. Above all, we can promise the opportunity of a kind of service which brings a satisfaction deeper than any material reward.

There are great unsolved problems waiting for the Pasteurs of the future. Influenza, pneumonia, cancer, and the rest of the unconquered plagues will some day yield to the patient assault of science, and it may well fall to the lot of young men who are entering our laboratories today to write the obituary of these diseases as Walter Reed did that of yellow fever in 1900. Two of Reed's letters to his wife after he and his associates had made the great discovery that insured the conquest of yellow fever in the ensuing year are so full of the solemn dignity of such a victory that I will quote them.

Six months ago, when we landed on this island, absolutely nothing was known concerning the propagation and spread of yellow fever—it was all an unfathomable mystery—but today the curtain has been drawn.

And later, on New Year's Eve, he wrote:

Only ten minutes of the old century remain. Here have I been sitting, reading that most wonderful book, "La Roche on Yellow Fever," written in 1853. Forty-seven years later it has been permitted to me and my assistants to lift the impenetrable veil that has surrounded the causation of this most wonderful, dreadful pest of humanity and to put it on a rational, and scientific basis. I thank God that this has been accomplished during the latter days of the old century. May its cure be brought out in the early days of the new!

Need for Sanitary Statesmen

Yet we need not wait for the great discoveries of the future to make the public health campaign of the present day bear fruit. We want sanitary statesmen as much as investigators. We need organizers and propagandists for the cause of health, capable of building wisely the great scheme of health protection of the future and of enlisting in its support the enthusiastic cooperation of the peoples of the earth. To the administrator, as much as to the investigator, comes the consciousness of a reward for his labors, fuller and more immediate than that which can be earned in many walks of life; for he can know that in a given city in a given year so many hundreds or thousands of men and women and children are alive and well who would have been in their graves except for him. What old Sir John Simon said of industrial diseases is true of every kind of preventable malady which afflicts mankind.

The canker of disease gnaws at the very root of our national strength. The sufferers are not few or insignificant. They are the bread winners for at least a third part of our population. . . . That they have causes of disease indolently left to blight them amid their toil . . . is surely an intolerable wrong. And to be able to redress that wrong is perhaps among the greatest opportunities for good which human institutions can afford.

SURGEON GENERAL CUMMING, NEW CHIEF OF PUBLIC HEALTH SERVICE

DR. HUGH S. CUMMING has received the appointment as Surgeon General of the United States Public Health Service, to succeed Dr. Rupert Blue.

Dr. Cumming was born at Hampton, Va., August 17, 1869. He was graduated in medicine from the University of Virginia in 1894. On May 25 of the same year he was commissioned as assistant surgeon, passed assistant surgeon five years later, attained promotion to surgeon March 15, 1911, of senior surgeon November 8, 1918, and was appointed Assistant Surgeon General March 6, 1919.

For a number of years Dr. Cumming was quarantine officer at Hampton Roads. Most of his work during his quarter of a century of service has been spent in quarantine work. At the time of his appointment he was in Naples, fighting typhus, and it will be some weeks before his work in that city, Constantinople, and Paris can be completed.

Dr. Cumming takes the position as chief executive of the United States Public Health Service at a time when the issues are more pressing and the work more exacting than ever before. The difficult tasks which the Department faces at this time include the rehabilitation of the thousands of soldiers who contracted tuberculosis during the Great War, and of the soldiers incapacitated mentally or suffering from nervous disorders as a result of their overseas experience. The ravages of the two successive influenza epidemics are to be combatted, and means evolved through research for the control of succeeding waves of this disease.

Preventive medicine is to be brought to the fore and the increasing demand of medical agencies for Federal leadership call for reorganization of the service to meet the standard of a new era in public health.

REVISED CASUALTY LIST

Final revised figures of American Army casualties in the war have been announced by the Adjutant General. They show that the total casualties were 302,612, with deaths numbering 77,118. Prior figures, based on weekly casualty summaries issued by the War Department, gave the total as 293,061, with 77,635 deaths.

The revised figures are as follows:

Killed in action	34,248
Died of wounds	13,700
Died of disease	23,430
Died of accident	2,019
Drowned	300
Suicide	272
Murder or homicide	154
Executed by sentence of General Court Martial	10
Other known causes	489
Causes undetermined	1,839
Presumed dead	650
Total dead	77,118
Prisoners unaccounted for	15
Prisoners died	147
Prisoners repatriated	4,270
Total prisoners	3,432
Wounded slightly	91,189
Wounded severely	83,390
Wounded, degree undetermined	46,480
Total wounded	221,050
Missing in action	3
Grand total	302,012

INFLUENCE OF WAR CONCEPTS OF MENTAL DISEASES AND NEUROSES*

By SIDNEY I. SCHWAB, M.D., Professor of Clinical Neurology, Washington University, St. Louis, Mo.

A SCIENTIFIC friend of mine has suggested that in the next war, and he seems to be convinced that there will be a next war, an army of scientists will be mobilized at the first indication of hostilities. He foresees that such a scientific army will accompany the fighting contingents wherever they go, in order to take immediate advantage of the extraordinary opportunities for scientific exploration that a war in the modern sense of the word affords. His point, and therein is its novelty, lies in the fact that such a scientific army will have no direct military object, but will be organized to take advantage of the free exploitation of the treasures of civilization which a state of war spreads over the face of the earth. War in this sense becomes a kind of scientific emergency, and the free play of scientific minds across the field of this emergency should yield a rich harvest.

WAR GAINS IN NEUROPSYCHIATRY

The chief gain to psychiatry as a result of war experience lies not so much in new discovery as in a new basis of interpretation.

Contributions to the literature are more and more on the basis of conduct interpretation, seeking an understanding of the war psychoses as instinctive protective reactions of the nervous system.

The difference between war psychoses and the defensive reactions of the maladjusted individual in civil life is one only of degree. The remedy for both lies in a mental hygiene, which induces the patient to face his problem frankly and see it through.

War Contributes to Science

That wars hitherto have not been rich in scientific conquests is explained by the fact that in no war has there been an organization planned to add to the sum of knowledge by utilizing the research opportunities unloosed by nations fighting for their existence. However fanciful this notion may be, it holds an element of truth and this truth is the propelling motive behind this meeting of the American Association for the Advancement of Science. In the war an initial organization of this kind was attempted, chiefly in those branches of science the application of which had a distinct military or combative purpose. Physics, chemistry, geology, metereology, and medicine all have a military significance. In the final period and up to the armistice the organization of such departments had reached a definite degree of excellence.

In war there is a curious change in the habits and thought of a people, chiefly due to the fact that there is a state of emergency, upon the proper solution of which the safety and existence of that people may well depend. It is here that the trained mind of the scientist comes face to face with his opportunity, and it is to his everlasting credit that in this crisis he has not been found wanting. The war against ignorance is transferred from the laboratory and the classroom into the actual area of conflict and the same method which is effectual in the one place is effectual in the other. Search for truth is concerned but little with motives except those inherent in truth itself; and response of scientific spirit, activated by the call of dire necessity, is as true to the underlying laws of scientific reasoning in a hut near the front lines as in a well lighted and warmed laboratory on the picturesque campus of a university.

You can visualize, then, a body of scientists as an integral part of the armed forces in the next war, prepared to gather from the destructive agencies that will then be let loose such data of new knowledge as may add to the hard won assets of man's urge towards a completer understanding of the universe. The tendency to see in destructive happenings elements of gain is but a reflection of the spirit of rationalization. It is man's excuse for his intemperate and illogical ways of doing things. It lies behind the question so often asked of those returning from overseas: "What has been the gain to you or to your branch of knowledge out of the more than four years fighting?" The purpose of this paper is to put that rationalization in concrete form by telling in a brief way what one department of medicine has gained and to point out how that gain, or illumination as I choose to call it, has resulted from the application of pre-war experiences often of highly theoretical nature, developed in many

*Read before the American Association for the Advancement of Science, Section on Physiology and Experimental Medicine, St. Louis, Mo., January 2, 1920.

laboratories and from the accumulated experiences of many clinical students.

The problem concerns itself with the nervous system of a soldier in the face of the destructive agencies of modern warfare. This nervous system had to face the shattering force of high explosives, machine gunning, unutterable weariness, and all the other agencies of destruction that the scientific energies of the human mind bent on extermination could devise. Let us assume for a minute that the nervous system of the soldier was made the object of a series of laboratory experiments in which every sort of disintegrating force was applied to it in order to see, observe, and measure the resulting phenomena. A wealth of information of the greatest value would assuredly come out of controlled and carefully planned tests of this kind. The war was such a laboratory on a colossal scale and with an enormous number of experiments, with the difference, however, that in the war the experiments were neither planned nor controlled; there were little laboratory equipment and no important body of trained observers or assistants. Such as they were, they had mostly other things to do, chiefly the task of getting the same laboratory subjects back to the fighting lines as quickly as possible so that they could be experimented on again.

Value of Uncontrolled Experiments

As a result of these uncontrolled experiments what new thing came out and how much was added to the total of our knowledge of the nervous system as a whole? In other words, because of the war experience do we know more about the nervous system? If we do, how is it possible to make use of this gain towards solving the problems of the civilian conflicts which this same nervous system must meet? It can be conservatively stated that at least 20 per cent of the total casualties, exclusive of disease and infections, was concerned either directly or indirectly with the nervous system, that is, wounds of the peripheral nerves, spinal cord, brain; and that shock to the nervous system unaccompanied by demonstrable changes in the anatomical integrity of the nervous system called shell shock or war neurosis. In the American army alone at least 20,000 individuals would fall in these categories. This then, constitutes the material for investigation, if a body of neurologists had been sent over for that purpose. Is it any wonder that this friend of mine should have been impressed by the scientific opportunity offered by a great war? Is it not a matter of importance that the next war should find scientific preparedness a little more forehanded?

The material for study was much more extensive than this, for it is to be remembered that the medical examination of hundreds of thousands of recruits in the United States has brought out facts of the greatest importance. There was given an opportunity to study the nervous system of four or five million of easily controlled youthful male citizens,—prospective soldiers. After the obviously unfit were excluded the normal residue was transferred to training camps where it became, or might have become, an object of neurological study from the point of view of the reaction to military training and military life. Then, sifted again, with the rejection of the unfit, these soldiers were sent overseas, further trained on foreign soil, and directly prepared for active participation in the combat. Here again the unfit were rejected and those remaining, wholly sound and fit to be combatants, were sent to the forward areas and lived thereafter under conditions of actual fighting. The nervous system of that army was then subjected to the physiological test of meeting series of destructive influences, and the results as wounded or sick soldiers gathered together in special or base hospitals for treatment and such study as the exigencies of the situation afforded. After the armistice the uncured residue were sent home as charges upon the public health service where further study can be carried out.

This merely sketches out the material that a war furnishes for study, a war which engages the whole man power of a nation and where the total physical strength of a people is called into activity. In spite of the fact that this war could not altogether be looked at as a series of countless physiological experiments, there came out of it much to stir the imagination and awaken the enthusiasm of the neuropsychiatrist. It may be regarded chiefly as a kind of illumination, a sort of light thrown unexpectedly into dark places, giving often enough merely a fleeting glimpse of what the problem really is and how a solution may come about. A glimpse around the corner may express this more fully. A science is enriched not by facts alone. Very often a shifting point of view, a new insight, a novel background, are the permanent gains and lead the way to more constructive thought and experimentation.

The war has enriched neurology by the stimulus it has given to numerous workers in this field, by the opening up of new pathways, and in encouraging students in its ultimate possibilities.

The nervous system is a very complicated structure out of which develop and upon which are based groups of complex mechanisms. These have to do with the physiology of the nervous system,—chiefly with the problems of the integration of

nervous impulses to and from the various centers of coordination; also, with the development of functions of consciousness and personality. Each and all of these may show reactions of an abnormal kind as a result of the material and emotional shocks of warfare.

If, for example, a machine gun bullet severs completely the ulnar nerve, the resulting paralysis of the muscles supplied by that nerve and the accompanying sensory disturbance, from the point of view of a laboratory experiment, present a complete conduction break in that nerve. The phenomena that follow are of two kinds: one groups itself about the anatomical changes produced in the distal and proximal part of the nerve deprived of its nutritional cells in the spinal cord, the degenerative action at the point of severance, and the tissue changes resulting in the section of normal nerve fibers and its replacement by fat and other abnormal tissues. If the severed nerve is re-united by suture or if there is a bridging of the space of separation, there develops a reaction of functional readjustment, an effort at regeneration which sets forth the physiological problem and frames the anatomical picture. The other group concerns the individual deprived of the use of his ulnar nerve by the failure to unite. If the period of regeneration is unduly prolonged, he takes note of the experiences which accompanied that injury and gives way to the depression and discouragement, and, falling a victim to the organization of such a state, there develops a change in his personality which may finally completely overshadow the ulnar injury. Follow that soldier to his home after discharge from the army and observe that he comes back as a handicapped man to whom the necessary adjustment to a different kind of employment comes hard or impossible. Think, then, of the long contemplation of his injury, the notion that the government should be at least materially concerned with his plight, his disappointment at the reception which a wounded defender of his country obtains, the economic and social responsibility piling up on him, and other things of a like nature, and you can sense something of the consequences of that simple military experiment performed in the laboratory of the Argonne Forest. This sketches in a crude fashion a phase of the problem which neurology has had to face in this war, and this is a simple example.

Here is another: A soldier receives a fragment of a high explosive shell in his cortex after it had fractured a part of his skull. With return of consciousness and after his wound has been healed, with the fragment removed, he finds that he can move his right side only with great difficulty and that he is unable to pronounce the word which is in his mind, nor can he express an idea clothed in the words which seem to him present in his consciousness. He is paralyzed and aphasic. His recovery is slow. He returns home able to walk with a limp, but unable to speak or write with his former facility. Some time later he becomes the subject of a convulsion and there develops slowly but progressively a condition of dementia, with such a change in his personal make-up that he must be removed from the social niche which he formerly occupied, and from his normal social environment.

Development of Defense Amnesia

The third example is of a different kind, and this experiment was performed some fifteen thousands times, at least, in the American Expeditionary Forces, some eight hundred thousand times in the French army, and more than that in the English divisions. A soldier, after some fatiguing experience and possibly a period of sleeplessness, is subjected to concussion by the explosion of a shell which, falling in his neighborhood, renders him unconscious. He is tossed in the air, and his last remaining gesture after he completely passes out is a gesture of defense against the onward rush of the air compressed about him. He partially regains consciousness in some hospital far removed from the scene of this experience, and finds, much to his astonishment, that his arms are in a state of constant movement, carrying out the defensive gestures with which he ended his last conscious moment. On examination by his medical officer it is found that he cannot feel the prick of a pin on one side of his body and that he is unaware of the position on one side of the smaller joints as they are moved in testing for his sense of position. He has at first only a vague idea of what has happened to him, but with returning consciousness, more of the picture and its attending horrors rise up in his mind. He recalls with a remarkable degree of vividness that his chum who was next to him had disappeared in a blinding flash of some explosion and that portions of the disintegrating body had spattered over him. This memory and the attendant circumstances fill him with such intense horror and arouse in him such a degree of intense emotional reaction that suddenly the whole incident, together with many that preceded and followed it, are blotted out of his mind. He develops a defense amnesia, and a break in the continuity of his memory stream results. This defect in consciousness acts like a foreign body, giving to him the sensation of something strange and queer, something that dissociates his personality in that

particular segment from reality. In this state he lies in his hospital bed, the prey to all the agonizing emotions resulting not only from a serious shock to the nervous system as such, but those due to a sense of mystery and misunderstanding.

This exemplifies a picture of shell shock or war neurosis, and not a very serious case as it happens to be,—such a one as has been cured by the hundreds in all the armies. It is necessary to note that in the last example of injury to the nervous system nothing tangible has been produced in the way of a destructive process in the tissues of the brain, but there has been brought into action a curious and interesting reaction of the nervous system,—the primitive reaction of defense, resting upon the instinct of self-preservation and activated by the protective emotion of fear. For the time being, at any rate, the individual so shocked is in no condition to repeat the experience that has brought him to this condition, and this protective neurosis will exist until his organism is again fit to take up military activities. The fixation of these symptoms and their elaboration into a more permanent system of defense can be prevented by skillful treatment.

The Role of Neurology in Medicine

It is something of a task to put down in a definite way just what the war has given to neurology and to point out in a positive fashion just what and where the gain has been. Even a record of new facts or new ideas will not convey the essential thought that through the exigencies of war neurology has come to something of its proper place in the domain of medicine. There has arisen the idea that in civil life, as well, there occur conflicts from which the nervous system comes out shocked and traumatized in the same essential manner that the nervous system of the soldier suffered in the more incisive and immensely more shattering conflicts over there. The social and economic stresses with which our world is filled, plus the incidence of various diseases that seem to be the necessary accompaniment of our civilization, produce a similar degree of receptivity to shocks of all kinds that the more resistant nervous system of the soldier, in the face of the more acute and more generally physical shocks of the battle area, had to endure.

The current of thought that runs in the usual post-war discussion of the profit and loss that has arisen out of the war centers about the question as to methods by which the benefit of this experience may be translated into civilian life. If the war has granted a fresh insight into the perplexing problems of the nervous system and into the various phases of the functions of consciousness, what opportunity will there be to utilize these gains when the same problems are presented in the reactions of the nervous system to the conflicts and stresses arising out of our post-war civilization? It appears that this sort of forehandedness has been more usual and prevalent in the minds of the medical profession as a whole, and particularly the neurologists, than has been the case in any war that we have any knowledge of. The literature of the present moment, so far as it is concerned with the medical problems of the war, is permeated with the thought of this effort to translate the experiences gained in the area of fighting into the conditions that are present in the every-day life of the average community. In an attempt to analyze the applications of knowledge to war conditions and to establish some kind of measurement of what was accomplished, this trend must be taken into account. If no post-war use of any measure that was found effective in the zone of fighting can be found, it is reasonable to conclude that its efficacy was transient and the gain illusive.

In the domain of the actual physiology of the nervous system and the anatomical phase of this question little can be said in the way of a definite increase in our knowledge. No new facts of great consequence came out of the many thousand cases of peripheral nerve wound, and no new physiological principle and no new note on the question of regeneration. There was some improvement in the technical handling of nerve wounds, and some more definite conceptions in respect to the manipulative treatment following surgical procedures. These touch more closely upon the questions of neuro-surgery, with which this paper has little concern.

Sensory Symptoms Following Severance

One phase of this topic deserves to be mentioned, however, as it points more readily to the type of illumination already mentioned. As these hundreds of cases of peripheral injuries came to be examined there was seen increasing evidence that the sensory symptoms following severance and those that developed during the various stages of healing became a matter of physiological inquiry. The curious phenomena of the sensory overlap and the diversity in the sensory return lead back to a series of pre-war investigations associated with the names of a group of English neurologists and physiologists. The war can be said to have directed attention to the practical utility of this work, and that it made for a great increase in the care with which the resulting symptoms were followed. Much of

this work is still uncompleted, and in the study of the residue of such cases still under medical supervision in America the physiological questions that cluster about a regenerating nerve may reach some measure of solution. The war has furnished a great many instances of this kind, and it can be expected that for many years such instances will be present for the intensive study that is required. In a similar fashion, the wounds of the spinal cord, of which there were many instances, furnish physiological opportunities. The functions of the spinal cord, especially its tendency to automaticity according to its primitive physiological and segmental structure, came in for much intensive study, and the Sherrington concepts received in the hands of at least one of his most distinguished students a full measure of testing.

The cerebral wounds and injuries resulting from shell and penetrating wounds of the skull gave a series of localizing experiments of extraordinary variety and complexity. Here, also, it is too soon to establish the permanency of the newly won facts. It will need all the experience that will be gained through the careful study of the re-education of the functions that have been temporarily lost, to determine if it is necessary to revise some of our previous points of view. There are now piling up in the note books of investigators the facts necessary for the final estimate of what utility all these cruel experiments may finally turn out to be. If, then, we review the whole aspect of the definite injuries of the nervous system, it is difficult to point out so far a series of definite gains to the various phases of the subject associated with the functions of the spinal cord or of the brain.

Utility of Pre-War Investigations

In the field of what has been called the functional diseases of the nervous system, among which war neuroses or shell shock takes its place, the war has been of great service in stimulating new lines of thought and giving unusual opportunity to test out and put into practical application the results of many years of pre-war study. It is this phase of neurology and its effect upon the demands that post-war conditions will undoubtedly furnish that the largest emphasis in a paper of this kind must be placed. The psychoneuroses, the civilian term given to that large group of abnormal nervous system reactions which show themselves under the various clinical pictures called neurasthenia, hysteria, or psychasthenia, come to the front in the war as specific war-born conditions, called shell shock, war neuroses, *nevrose de la guerre*, or *Kreig neurosen*. In civilian experience these conditions are termed functional, because they were obviously not the result of organic changes in the nervous system, but were functional deviations resulting either from some shock experienced or a series of unusual happenings associated with powerful emotional content. These were often congenitally predetermined, suggesting that the nervous system in such individuals was incapable of meeting the demands made through environmental conflicts. Towards the interpretation of these conditions various theories and notions had grown up and in a sense they had become crystallized almost into the rigidity of systems.

Response Is Essential Characteristic

The experiences of the war illuminated this subject from two important points of view: (1) It showed that any soldier under given circumstances would develop a neurosis and (2) it showed that the potential neurotic of civil life not only developed a war neurosis under less intense traumatic environment than the normal soldier but, also, that such an individual was less capable of cure, and thus belonged to the uncured residue that filled up so largely this class. The gain resulting from this experience lies largely in the first category, reflecting as it does the proposition that in the civilian neurosis generally, and in the war neurosis particularly, we are dealing with fundamental and primitive responses of the nervous system. This response is to be considered as an essential biological characteristic of the normal nervous system. It stands ready to spring into activity when the organic safety of man is in danger. The traumata of civil life awaken this dormant activity mainly in those who possess a less stable mechanism of adjustment, while the more severe traumata of warfare arouse this protective mechanism in any one.

In order to connect up this reaction with the normal response, it must be founded upon some very general and primitive characteristic of living things, and particularly must it be associated with some type of primitive response in man. This is to be found in primitive instincts. Two of these need only to be touched upon here: that of self-preservation and that of reproduction, or sex. The latter may be excluded in the present consideration as being included in the larger sense of the former term, or as showing itself in only very indirect reactions.

A normal nervous system under the stress and trauma of warfare, previously weakened by fatigue, hunger, and sleeplessness, in the presence of a sudden or unusual shock associated with extreme emotion, arouses the self-preservative in-

stinct into dynamic activity, automatic and uncontrollable. Induced by the primary emotion of fear, this activity protects the individual through the elaboration and stereotyping of sets of functionally abnormal responses which, conforming to certain clinical manifestations, give the picture which is called shell shock or war neurosis. These protect the individual from re-experiencing similar sets of traumata exactly as in the same way fatigue protects the individual from destroying his complete organism by fatal over-use.

Protective Quality of the Neuroses

This point of view is put into a dogmatic formula because it is only by so doing that we can suggest the illumination which it throws upon one of the least understood disease reactions of the nervous mechanism of mankind. The experience of the war based upon theoretical consideration, developed but not capable of direct application until put to actual test, leads now to the opportunity to build up a psychological mechanism of the neuroses from the standpoint of primitive instincts. The tracing of this line of thought during four years of war is an interesting story, but lack of time prevents the statement here of more than the briefest outline. The start, perhaps, was from the earliest Freudian conception of the protective quality of the neuroses,—its compromise aspect from the social point of view. The divorcing of this general reaction from the single factor of sex, a factor not seen in war, broke the thread of the Freudian process of thought and led to the seeking and finding of a more general principle. A group of English neurologists and psychiatrists,—Rivers, Meyers, MacDougall, Mott, and others,—each from his special standpoint, added to the general trend of thinking on this subject until at our own entrance into the war the foundation had been pretty well laid. A good deal of the further crystallization of this thought was due to the fact that the American Expeditionary Forces had an adequate machinery for the studying of the war neuroses in the establishment of a special hospital for these conditions in the forward area. This was called Base Hospital 117. There was formulated under conditions which in war-times must be called ideal a complete elaboration of the mechanism of the war neuroses. Here they were definitely established as clinical entities, typed and classified according to the notion just sketched. Here also were outlined certain ideas relative to the purpose and plan of the psychoses which in time may do for them what the neuroses of the war type promise to do for the civilian reaction of a like character. The experience of the war showed that there were episodes in apparently normal soldiers which took on many of the characteristics which are common in the psychoses of civilian life. A study of these conditions, owing to their crudeness and their acuteness of onset, permitted an insight into the intricate mechanisms of certain psychical states that may lead to pathways of inquiry of the most valuable kind.

A consideration of nervous and mental diseases, not merely as evidences of normal reactions themselves, but as reflections or as indications of the complexity of our social structures, leads directly to the larger view on this subject connoted in a phrase of today, mental hygiene. In the fighting area disease in general, and nervous disease especially, came to be viewed as events of military importance. A deficit in man power meant defeat, and a sick soldier was the unit of this defeat. Particularly true was this in a case of a soldier who, instead of being the victim of a disease in the ordinary conception of the term, or wounded in an evident way, was taken out of his place in the line because his nervous system as a whole had failed to adjust itself to military conditions. Physically he was sound and often rugged. He was a soldier in every way except that as a result of a shock his potential military capacity was incapable of translating itself into active fighting.

It follows that in any community under civilian conditions an individual who has failed to adjust himself to the demands of the civil conflict implied in the struggle for existence, and to the economic social stresses, through the compromise of a neurosis, must be regarded as a citizen-soldier for whose concern the community is responsible. Any one who falls a victim of a psychosis due to the same trend of causes takes his place in that community as a soldier who is prevented from carrying on his civic responsibility. For these maladjusted individuals the community must organize its best resources in order that return to duty may come about as easily and as promptly as possible.

Gains to Neurology Summarized

The resulting gain to neurology which has come out of the war is to be measured by facts of a new sort, by conceptions in regard to mechanism and by ways of thinking about previously established problems.

(1) There have evolved certain definitely observed facts as a result of the wholesale experience on the human nervous system. These facts have to do with the physiology of the peripheral nerves, the spinal cord, and the brain.

(2) There has been established a working basis for the understanding of the neuroses based upon

a psychology of instinct in which the primitive instinct of self-preservation and the emotion of fear have translated themselves into a protection for the individual under the guise of a disease picture.

Episode Reactions

(3) Certain groups of the psychoses are seen as episode reactions, closely related in origin and mechanism to the neuroses, but implying a more profound disturbance of consciousness. They tend to disappear as the need for them disappears.

(4) The handicapping of an individual by either of these conditions becomes of primary social significance, and the solution of the perplexing problem lies in the field of mental hygiene.

(5) A definite and incisive therapeutic method came out of the of war neuroses. Its efficacy can be measured by the large percentage of cured cases which were returned to active fighting conditions.

Object of Therapeutic Method

The central notion of therapeutic method consists in an attempt to influence a patient in such a way that he faces frankly and unafraid the conflict situation which has developed in his mind. He is taught that he must not depend upon instinctive processes of defense and protection, but must rely largely upon his ability to face his own problem and see it through. The effort to bring into active consciousness and expose to critical analysis of his normal mind the material automatically suppressed provides the means by which the individual can substitute a conscious for an unconscious defense.

A mere outline of this therapeutic idea scarcely can touch upon its future possibilities. Out of it should come a new therapeutic courage which, in the hands of trained and skillful neurologists, should create a therapeutic method which directly and incisively attacks the psycho-neurotic manifestations at their source.

Conclusion

My concluding word is this: After every war the world tends to pass through a phase reaction which is to be regarded as but the expression of the fatigue which grips a nation which has expended everything in the struggle.

The hard won gains of the war are often thrown away because of the apathy, weariness, intolerance, and fear of a tired people. Through such a period of transition it is to be hoped that the fruits of the war experience in neuropsychiatry may be translated, unweakened and vitally intensified, into all of its civilian phases.

DR. LANZA JOINS CLEVELAND FIRM AS MEDICAL DIRECTOR

Dr. Anthony J. Lanza, who heads industrial medical service.

DR. ANTHONY J. LANZA was born in New York in 1884. He was graduated in medicine from the George Washington University, Washington, D. C., in 1906, and became resident physician to the Casualty Hospital, Washington, D. C.

Dr. Lanza entered the United States Public Health Service in 1907. His service included one year in the United States Marine Hospital, San Francisco; he was then assigned to duty with the United States Coast Guard for two years and was boarding officer, San Francisco Bay, for a year and a half, after which time he was stationed at Fort Stanton, New Mexico Tuberculosis Sanitarium for two years and a half.

In 1918 he was assigned in charge of the office of industrial hygiene and medicine of the United States Public Health Service in Pittsburgh. This office moved to Washington, November, 1918, but had branches in Philadelphia, New York, Pittsburgh, Chicago, Cleveland, St. Louis and New Haven.

On the first of January, 1920, Dr. Lanza became medical director of the Hydraulic Pressed Steel Company, Cleveland, Ohio. This company, with two plants in East Cleveland, one in West Cleveland, and one in Canton, Ohio, plans a thorough and extensive medical service for the employees, including the industrial hygiene of the plant. The development of the complete medical service planned by this company under the direction of Dr. Lanza will be watched with interest.

A SHORTAGE of forty thousand trained nurses in the United States created a serious situation during the epidemic, and a campaign has been begun to enroll sixty thousand workers. While the epidemic was at its height women who had taken a short course offered in many cities, joined the corps of trained nurses and worked valiantly to check the spread of the scourge. Mobilization of all Red Cross nurses in the southern division was ordered. (Photos by Underwood & Underwood.)

THIS page illustrates some of the reasons why the epidemic of influenza this year failed to take so heavy a toll of human life as it did two years ago. Municipalities, aided by science, have put up a determined fight, with the result that the number of fatalities has been much smaller than when this plague first made its appearance. In the laboratories, white-capped and gowned men and women labor to perfect a serum which will achieve the desired results. This year three-fourths of the population of the world have been afflicted, but owing to a better understanding of how to treat the disease, the number of deaths has been materially reduced. In making experiments in the laboratory, white mice are used to test the serum. Funds are to be provided by Congress, if a resolution which has been introduced is given favorable consideration, to afford specific knowledge of preventive measures.

HEMIPLEGIA—SPONTANEOUS AND TRAUMATIC

WALTER D. WISE, M.D., F.A.C.S., Clinical Professor of Surgery, University of Maryland School of Medicine, and College of Physicians and Surgeons, Baltimore, Md.

NOT infrequently one sees a patient in coma with hemiplegia in whom there is a history or evidence of trauma. The task of the surgeon in this class of cases is to determine the nature and location of the lesion, and whether it is a cause of the trauma or a result; that is, whether the case presents an apoplexy in the usual sense, thrombosis or embolism, or intracranial damage as the result of injury. Typical cases are cited as follows:

Case 1.—A workman, age 40, engaged in repairing the top of a ear, fell to the ground and was rushed to the hospital in a deep coma. Examination showed no injury to the head, a few body bruises, and a complete hemiplegia. A diagnosis of apoplexy was confirmed at autopsy.

Case 2.—A painter, aged 30, fell from a scaffold (the scaffold did not fall) and was brought to the hospital unconscious with a hemiplegia. Examination revealed a slight abrasion and bruise on scalp. A diagnosis was made of probable apoplexy, but the motor region was explored. No evidence of extra or subdural injury was found.

Case 3.—C. M., age 38. He was seen by workmen sitting on his wagon seat apparently asleep, with head down, and leaning to one side. A red flag and shouts from the men did not prevent him from driving, or allowing his horse to go, into a ditch. He was thrown out and, when picked up, was unconscious and had a hemiplegia as noted by a well known doctor who happened along. He was sent to the hospital and examination showed paralysis of the right side of the face, and arm, and a partial paralysis of the leg. There were no bruises about his head or face. The blood pressure was 130. Urinalysis showed sugar. The next day he had regained consciousness and some use of the arm, with more use of the leg. There was no operation and in one week he was sufficiently improved to be moved to his home.

Other Types of Hemiplegia

Case 4.—*Localized edema.*—Man, age 19, injured by falling into the hold of a ship. Examination showed a slight contusion of the scalp in the right parietal region. He was unconscious for a few moments, then clear mentally, but became somewhat confused on the second day. He complained of headache and began to lose weight with remarkable rapidity. About the third day he began to lose the use of his left arm and leg. As soon as the paralysis was definitely established, he was operated upon. Exposure of the right motor region on the sixth day after injury showed no hemorrhage extra or subdural, but an exceedingly great amount of local edema within the pia-arachnoid. Drainage was made and reasonably prompt recovery took place. He began immediately to regain his lost weight, and gradually to recover motion in arm and leg.

Case 5.—*Subdural hemorrhage.*—R. R., age 28, injured in an automobile wreck. He lost consciousness immediately and when first seen, a very short time after the accident, no difference could be made out between the two sides. Later he became extremely restless and in thrashing about did not move the left arm or leg. Operation showed no extradural hemorrhage, but there were a large localized subdural hemorrhage and other free bleeding with a very red brain.

During the past few years the literature has contained many reports of alleged cases and of discussions concerning trauma as a causative factor in the production of apoplexy. It is universally admitted that blows on the head may cause compression or concussion and, by a laceration of brain tissue, excite immediate hemorrhage. Likewise, there is no question but that trauma may, and sometimes does, prove the exciting cause of apoplexy in individuals whose cerebral vessels are already in a condition of disease.

There are many who admit the possibility of arterial degeneration in vessels previously healthy, as a direct result of previous injury, but few can fully agree with Bollinger that all of his reported cases of "late traumatic apoplexy" were due solely to trauma.

The usual conditions which are responsible for the production of arterial changes, among which are advanced age, chronic heart, kidney and liver disease, typhoid fever, syphilis, and poisons, such as lead, alcohol, and tobacco, predispose to rupture and resulting hemorrhage.

Not only may the abnormal blood pressure, directly induced by the trauma, be sufficient to cause cerebral hemorrhage from these damaged vessels; but even in the more trivial injuries other conditions, such as excitement, fright, or anger, may have a similar effect.[1]

In the vast majority of cases the injury merely plays the part of an exciting cause in a person predisposed by reason of some vascular weakness due to alcoholism, nephritis, syphilis, or cardiac disease, as held by Eisendrath, Harbaugh, Mendel, Dana, and Golebiewski.

Stadelmann contends that in order to confirm the presence of true traumatic apoplexy it is necessary to prove the individual to have been perfectly healthy up to the time of the accident, especially not to have shown any vascular changes from lues, nephritis, alcoholism, or cardiac disease; and the trauma must not have happened to a person advanced in years on account of the arteriosclerosis always present in them.

The trauma must have had a certain seriousness, even if it was not followed by unconsciousness; and in cases occurring late after the original accident symptoms of vascular disease must have developed within a short period and under the observer's eyes. If years have elapsed after the injury, during which no observations of the arteries have been made, then it is impossible to establish a connection between the trauma and a subsequently occurring apoplexy.

1. Magruder: Traumatic Apoplexy.

In addition to the usual arterial changes, due to hardening of the vessel walls, miliary aneurysms may exist, which, when ruptured, may give rise to apoplectiform attacks.

As apoplexy has been known to follow any sudden exertion, such as lifting heavy weights or indulgence in violent exercise, and, likewise, from great mental strain, sneezing, coughing, overloading of the stomach and unusual indulgence in alcohol, these factors must be considered in connection with any case in which injury is alleged as the sole exciting cause of an attack.

Falls, excluding those which cause fractures, are more often the effect than the cause of sudden apoplexy, according to Thompson.

In the late traumatic apoplexies described by Bollinger, all of which ended fatally, there was an interval of days or weeks between the injury and the resulting hemorrhage. He considers the apoplexy as partly due to the change in the vessel walls, which occurs as the direct result of the original injury, and partly to the yellow softening of the surrounding brain tissue, which follows, meantime depriving the vessels of their nutrition.

Langerhaus and Israel disagree with Bollinger, and, after a critical study of his cases and others, are unwilling to accept them as the result of the initial trauma.

Wimmer claims that if, at autopsy, necrosis and hemorrhages are found in the ventricles, or there exist other symptoms of a direct cerebral contusion, or paralysis of muscles pointing to a localization, the diagnosis of a traumatic apoplexy, with some degree of safety, can then be made.

Stadelmann and Israel demand that, in true traumatic apoplexy, death must have appeared after a paralytic attack; must have ensued some time after the trauma; autopsy must not expose a number of small hemorrhages, but must show one or more large ones which would have been sufficient to have caused the paralytic attack.

At autopsy, in order to judge whether or not a hemorrhage was spontaneous or resulted through trauma, certain conditions must obtain. Spontaneous hemorrhages are always central,—spread from the interior to the exterior, and, usually, through their resulting paralyses, point to their exact location. In traumatic central apoplexies meningeal hemorrhages are always likewise present.

Mendel, after an extensive study of the reported cases, found that the time elapsing between the appearance of the apoplexy and the initial trauma varies between four days and nine months, and he contends further that, if the hemorrhage should occur after a longer time than nine months, its connection with trauma is quite unlikely. In the cases ascribed to trauma an interval of from one to six weeks has usually elapsed before the vessels rupture, and during this time, no doubt, the necessary vascular changes are progressing.

For a diagnosis of traumatic apoplexy, clinically and pathologically, it is necessary that the patient should have previously been in perfect health; should show no signs of arteriosclerosis, nor have suffered from lues, cardiac diseases or alcoholism, for in the presence of these conditions the chances for the occurrence of cerebral hemorrhages are so great that it is impossible to give to a preceding trauma any positive value as a casual factor (Bryant and Bruns, Bailey, Harbaugh, Golebiewski).

Paralysis in Nephritis

A patient suffering with Bright's disease may be stricken with a convulsion or coma and develop a mono- or hemiplegia and if the seizure is accompanied by a fall, the element of trauma as a cause of the paralysis may be hard to exclude. The paralyses occurring in uremia are usually due to localized cerebral edema or possibly local anemia. There is no hemorrhage. Of course, a true apoplexy may occur in a nephritic.

Spinal Hemiplegia

Brown-Séquard's paralysis due to injury, if associated with cerebral trauma, would produce a confusing picture. If time and conditions permitted a reasonably thorough examination, the diagnosis should be clear.

Of this condition Osler says:

> The motor symptoms which follow lesions confined to one half of the cross section of the spinal cord follow the same rules as those given for transverse lesions except that they are confined to one side of the body; that is, they are on the same side as the lesion.
>
> The sensory symptoms are peculiar. On the side corresponding with the disease, the paralyzed side, there is anesthesia corresponding to the segment of the cord involved; above this there is a narrow zone of hyperesthesia, but below this there is no diminution in the senses of touch, pain, or temperature; Indeed, there is often hyperesthesia. The muscular sense, however, is impaired. On the side opposite to the lesion there may be complete loss of the sense of touch, pain, and temperature; or it may only involve one or two of these, pain and temperature usually being associated.
>
> This combination of symptoms was first recognized by Brown-Séquard after whom it has been named. It is common in syphilitic diseases of the cord, and may follow tumors, stab wounds, fracture, and caries of the spine; and it is not infrequently associated with syringomyelia and hemorrhages into the cord.
>
> The explanation of the disturbance in sensation is not satisfactory, and can not be until our knowledge of the

paths of sensory conduction is more accurate. These cases have convinced most clinicians that in man the paths for touch, pain, and temperature cross in the middle line soon after entering the spinal cord, and proceed toward the brain in the opposite side; while those for muscular sense remain in the dorsal columns of the same side. We have seen that anatomy lends some support to this view, and this is the explanation that is usually given. The experiments on animals have thrown some doubt on this view, especially those of Mott on monkeys, which seem to indicate that the sensory paths for the most part remain on the same side of the cord.

Cerebral tumors and abscesses giving rise to pressure symptoms, and edema resulting from these conditions would not likely come within the subject under discussion.

Destruction of the motor cortex as by bullet wounds, and pressure and paralysis by depressed fractures are usually easily diagnosed.

Hemiplegia may be due to apoplexy, thrombosis or embolism leading to softening, cortical hemorrhage, extradural and subdural hemorrhage, depressed fractures, destruction of motor cortex, tumors, abscesses, nephritis, local edema, hemorrhagic pachymeningitis (usually in the insane), hysteria, and disease or injury of the spinal cord, —Brown-Séquard paralysis.

Hemiplegia may be the result of a lesion in (1) the motor cortex; (2) the pyramidal fibers in the *corona radiata* and in the internal capsule; (3) the cerebral peduncle; or (4) the *pons varolii.*

The hemiplegia may be (1) complete,—meaning paralysis or disturbance of motor control of face, tongue, arm or leg; (2) partial,—meaning a disturbance of motor control of any two or more of these parts; (3) crossed,—meaning a paralysis in which there is loss of function in a cerebral nerve on one side with loss of power or sensation on the opposite side of the body; or (4) false crossed or false alternate, in which a cerebral nerve itself is damaged and there is also damage to some part of the motor tract,—as in a fracture of the base of the skull with injury to the facial nerve, giving rise to an extradural hemorrhage and paralysis of the opposite side of the body or some part of it.

There is, as a rule, no reason to confuse typical cases of apoplexy, embolism, thrombosis, or spontaneous hemorrhage in tumors with trauma, and in a large percentage of traumatic cases the symptoms and signs are plainly the result of injury. There is, however, a small group in which it is most difficult or impossible to make a differential diagnosis. Frequently there is great urgency to make a decision; no history can be obtained from the individual or witnesses, and there is not time for a prolonged investigation.

If there were witnesses, their account of the fall, accident, or seizure is of the greatest importance; the evidence of persons seeing the patient a short time before, or a short time after the accident, may be of great value.

The presence or absence of the results of trauma, such as contusions of the scalp, bleeding from the nose, ear, or mouth, should have great weight in forming an opinion.

If there is a history of a fall without apparent cause, particularly in an elderly individual with arteriosclerosis, followed by immediate complete hemiplegia and no evidence of severe trauma to the head, it is probably apoplexy. The hemiplegia being incomplete does not, however, mean the lesion is not in the internal capsule, as this whole structure is not necessarily involved in the apoplexy that occurs so frequently from hemorrhage in that region.

A blow on the head, momentary unconsciousness, a lucid interval, slowly developing paralysis beginning with the face, then the arm, then the leg, is almost surely an extradural clot; but examples of a complete hemiplegia from this cause are not often encountered.

Cushing reports that "instances of actual hemiplegia from an extradural hemorrhage have been recorded, but they must be rare, since the centers for the lower extremity lie so far away from the primary point at which an extravasation is likely to arise that a clot large enough to implicate the upper ridge of the hemisphere would in all probability either lead to such deep coma that symptoms of hemiplegia could not be appreciated or would cause death before they were apparent."

A subdural clot producing a hemiplegia is also rare, but does occur; it is usually associated with unmistakable evidences of severe injury and unconsciousness; the paralysis usually becomes generalized, and there is frequently disturbance of the medullary centers.

Uremia very rarely develops under conditions to cause it to be confused with trauma, but, if it should, urinalysis plus the eye grounds should help make the diagnosis.

The absence of albuminuric retinitis does not preclude the condition being uremia, neither does the absences of choked disc preclude its being intracranial trauma. Trauma may cause an edema of the brain or local increase of cerebrospinal fluid in the arachnopial membrane sufficient to cause a hemiplegia. This may be limited or become generalized Clinically, it may resemble middle meningeal hemorrhage but the unconsciousness and coma are less marked and are not steadily progressive. Headache is very severe and on percussion there is marked tenderness which may be elicited even after patient has ceased to answer questions or take notice of his surroundings.

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L. HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

THE REPAIR OF BONE

JUST what takes place in the repair of bone and what structures enter into the process, are questions which have long remained unanswered. Macewen, in an excellent article in 1912, did much to clarify our contradictory conceptions, and W. E. Gallie and D. E. Robertson[1] of Toronto, Can., have recently published an exhaustive treatise on the repair of bone. We feel it well worth quoting at length from this article.

The authors first attempt to state the rôle played by the periosteum. They believe with Macewen that the periosteum is a limiting membrane, whose chief function probably is to carry the blood supply to the bone. Except at the epiphysis, the periosteum is loosely attached through the medium of a delicate areolar tissue. In the interstices of this areolar tissue are many osteoblasts.

When the periosteum is gently reflected, most of this areolar tissue clings to the bone. If a sharp instrument is used, much of this structure can be lifted with the periosteum and, as a result, many osteoblasts will be raised along with it. After the subperiosteal resection of bone, new bone will grow from the periosteum. The authors resected a length of bone subperiosteally; they split this resected bone in half, boiled one of the pieces for five minutes, and then replaced both fragments. In the case of the unboiled graft, bone appeared on the surface; but in the case of the boiled bone no such changes occurred, demonstrating rather clearly that the bone itself was the origin of the new bone growth, not the periosteum.

The bony growth under the periosteum in osteomyelitis, or in subperiosteal hemorrhage, as in infantile scurvy, is readily explained by the great proliferation of osteoblasts due to the inflammatory changes, so that now when the periosteum is stripped by the pus or the hemorrhage, many osteoblasts will be lifted with it.

In fractures the subperiosteal osteoblasts are very active; but Macewen has shown that if a fracture is produced in the shaft of a bone after the removal of the periosteum from that area, not only does the ensheathing callus develop but its quantity is actually increased. To state that the osteoblasts situated in the areolar tissue constitute a part of the periosteum will lead to erroneous ideas on the part of the surgeon that the periosteum, as he understands it, can be depended upon for osteogenesis. Transplantation of the periosteum with the graft is not essential. In amputations the authors believe that the simple method of cutting the periosteum at the same level as the bone is entirely satisfactory.

When a piece of bone has been cut free from its circulation and transplanted into some other

1. Gallie, W. E., and Robertson, D. E.: The Repair of Bone, Brit. Jour. of Surg., 1919, vii, No. 26.

position in the same animal, if it is freely bathed in lymph, those cells on its surface and in the open mouth of the haversian canals will live and proliferate, while those situated deeper in the lacunae will die. After the second week it will be noted that the proliferating cells have begun to absorb the bone. At the same time, but to a much less extent, there is found to be bone production. The circulation is reestablished throughout the graft by ingrowth of new blood vessels.

Along with these blood vessels the osteoblasts also pass into the interior of the bone, and rapidly continue the process of absorption. During the first two months the process of absorption goes on much more rapidly than replacement, so that by the end of this period the dense bone of the graft has become greatly rarified. If the graft is not subjected to any strain, and has no definite part to play in the function of the area into which it was implanted, the absorptive process continues in advance of the replacement and gradually the new bone also disappears and its place is taken by an ordinary scar.

Transplantation of bone in skeletal gaps produces changes similar to those produced by transplantation elsewhere, but the process of proliferation proceeds more rapidly. Following the destruction of circulation, all the bone of the graft dies and any changes or signs of life that may appear later result from the growth into it of osteoblasts from the neighboring living bone. The cells of the living bone respond to the stimulus of the dead bone, rapid proliferation occurs, and the graft soon becomes securely united by trabeculae of new bone. Active absorption by the osteoblasts commences and as the circulation is reestablished the osteoblasts spread throughout the whole graft. At the same time, new bone is laid down, so that the absorbed bone is replaced by a fine mesh of new cancellous tissue which is gradually changed to the density that the physiological function of the area requires.

When the graft is inserted as a bridge in ununited fractures, it is found that the bone proliferation at the edges of the graft, due to the outpouring of osteoblasts from the ends of the fractured shaft, is very marked. The rarification in the center is pronounced as in other instances.

This therefore demonstrates the necessity of using grafts of considerable strength, in order that their integrity be retained during the period of osteoporosis. When boiled bone or heterogeneous grafts, which when implanted into muscle are not viable, are used, it is found that the proliferation at the edges, due to the outgrowth of osteoblasts from the shafts of the bone, extend never more than one-half inch. For short defects, therefore, boiled bone, or heterogeneous grafts would be very satisfactory. For longer gaps, autogeneous grafts are necessary, unless, as the authors surmise, homogeneous grafts can be used in a recipient whose serum would be compatible to the cells of the graft. Plates made from boiled bone not only hold the fragments in good position but, because of the process of osteoclysis and osteogenesis, are finally absorbed and replaced by living bone.

The authors close their article with a word of warning against sepsis. Sepsis must always be feared in gunshot fractures and at least four to six months should be allowed to elapse after apparent healing before operation on ununited fractures should be considered, and then only after careful study of the case with the assistance of x-ray fails to show any signs of infection.

W. E. Gallie,[2] in another article, mentions the successful lengthening of an amputation stump by making a sliding graft from the remaining part of the femur, pushing this graft forward and holding it in place with screws of boiled bone. Six months later an x-ray picture showed that the bone from which the graft had been taken had been restored to its former density, while the graft itself had also thickened.

Albee and Morrison[3] in a recent article say: "Investigations made regarding the difference in osteogenetic power of the periosteum, by scraping the outer surface of the bone with a sharp instrument or by separation through the easier line of cleavage with a blunt instrument, show that in the first place the complete periosteum was obtained and found to be a very potent osteogenetic element, whereas in the second case the osteogenetic activity was found to be localized only in the spots where portions of the cambium layer happened to come away with the so-called 'limiting membrane' of Macewen." In the same article the authors advance evidence to refute arguments that x-ray in dosages as used for taking control pictures in fracture work can have any retarding effect on the process of osteogenesis, and certainly can not account for non-union.

Albee and Morrison[4] have found that the injection of a 5 per cent solution of triple calcium phosphate in distilled water in a gap made by the resection of a small portion of the shaft of the radius of a hare, resulted in a much more rapid bone growth and union than appeared in the control animals. In no case did the solution act as a local irritant or a systemic toxin. The authors

2. Gallie, W. E.: Observations on the Lengthening of Amputation Stumps, Lancet, Lond., 1919, excvii, 282.
3. Albee, F. H., and Morrison, H. F.: Studies in Bone Growth, Am. Jour. Med. Sc., January, 1920.
4. Albee, F. H., and Morrison, H. F.: Studies in Bone Growth, Ann. of Surg., 1920, lxxi, No 1.

at present are trying out the triple calcium phosphate injections in human subjects. Subperiosteal injection of the phosphates where bone was not fractured produced scant bone growth.

R. B. B.

GASTRIC ULCER

A VERY interesting article by Crohn and Reiss[1] is based on the careful study of thirty-four gastric cases. In five a gastric ulcer was later demonstrated at operation; in twenty-one, ulcer was the clinical diagnosis; and in eight the diagnosis was that of functional disturbance. All present used methods were employed in studying the cases, but the Rehfuss fractional test meal was especially utilized to follow gastric secretion and hypersecretion, gastric acidity and motility. Sippy and Lenhartz diets, and modifications of these, combined with frequent small doses of antacid, were given.

Although 73.5 per cent of these cases left the hospital symptom free, in only 38 per cent was the acidity reduced. Twenty cases in the series showed hypersecretion and in only nine cases, 45 per cent, did the amount of gastric secretion become normal. Thirteen cases showed delayed motility, and in eleven of these the motility returned to normal. The two cases in which this did not occur were unimproved.

There is, therefore, a marked disproportion between clinical improvement and improvement in hyperacidity, hypersecretion, and delayed motility of the stomach. The authors elaborate upon this and frankly state that their studies do not explain why various types of "ulcer diet" alleviate ulcer symptoms. They do not consider the question of cure by medical means in this series of cases; in fact, five cases were subsequently operated and gastric ulcers found.

One is impressed with the persistence of hyperacidity and the loss of gastric symptoms. Hyperacidity has been blamed on insufficient evidence, or on no evidence at all, for almost every gastric disease which occurs. It has especially been supposed to be the main cause of ulcer pain. It is a great satisfaction to find that in this article nothing is taken for granted and only facts are presented. This excellent article suggests that it would be extremely interesting, to say the least, to find out if the streptococci which are found in gastric ulcers are influenced by the degree of gastric acidity. More investigation of these streptococci is needed.

In this connection is to be noted the recent communication by Ivy[2] on "Studies on Gastric Ulcer." This article is the fifty-second contribution to the "Physiology of the Stomach" from Carlson's laboratory. It is in two parts, one devoted to experimental production of chronic gastric ulcer in dogs, and the other to the motility and emptying time of the stomach in acute experimental gastric or duodenal ulcer.

An excellent review of the literature of experimental chronic gastric ulcer is given. The stomachs of 900 dogs, which were used for class physiological experiments and can be considered normal dogs, were inspected for gastric lesions and found practically free. Only one stomach, that of an old, emaciated dog, showed an ulcer, findings which verify previous reports of rarity of gastric lesions in dogs.

Ivy failed to produce chronic ulcers until one dog developed this type of lesion after contracting distemper following an abrasion of the pyloric mucosa and feeding cultures of *Streptococcus viridans* with his food. Other dogs, which remained healthy when submitted to this procedure, did not develop chronic ulcers. Several other dogs with distemper or with cachexia from ligated pancreatic duct did develop chronic ulcers subsequent to the above experimental conditions. None of these chronic gastric ulcer dogs had free acid in their gastric juice. The same type of *Streptococcus* which was fed was recovered from the ulcers. Ivy believes, therefore, that it is not hyperacidity which contributes to gastric ulcer formation, but hypo-acidity, which allows bacteria to live and multiply in the stomach. He believes that some functional or systemic condition which causes gastric hypo-acidity, and also lessened general and local gastric resistance, is at present the most probable explanation of the etiology of chronic gastric ulcer. In this connection it must be remembered that the etiological relationship of bacteria to gastric ulcer has not been decisively proved.

In the second part of the article, Ivy shows that pyloric or duodenal ulcer in dogs causes delay in emptying time and, after twenty-four hours starvation, increases motility. Ulcer in the fundic position has no such effect. This corresponds to clinical observation.

Separation of the stomach from its extrinsic nerves—the vagi, splanchnics, and celiac plexus—only lessens the above effects of the ulcers. This shows that the fundamental cause of these effects is intrinsic but is enhanced by the extrinsic nervous mechanism.

In a review of Carlson's book on hunger, in the January, 1920, issue of MODERN MEDICINE, we pointed out the value of modern physiological

1. Crohn, Burrill B., and Reiss, Jos.: Effects of Restricted (So-Called Ulcer) Diets Upon Gastric Secretion and Motility, Jour. Am. Med. Assn., January, 1920.
2. Ivy, A. C.: Studies on Gastric Ulcer, Arch. Int. Med., January 15, 1920.

methods in the clinical study of cases of gastric disease. It is interesting that in Carlson's laboratory experimental gastric disease is being studied in this manner, and it is hoped that clinicians will see the value of these methods.

W. T.

MEASLES AND EXPERIMENTAL INOCULATION

THE average layman when he thinks of measles is prone to place it in the category of those mild ailments, like the common cold, which seem sent more to plague us during the period of our childhood than to have any more serious significance. Indeed, one still meets the parent—fortunately much less frequently than formerly—who takes the view that the young child will get measles some day anyway, "so he might as well have it now and get it over with." It is unfortunate that most of these laymen remain ignorant of the fact that hundreds and even thousands of children annually lose their lives from this cause, but the havoc wrought by measles in some of the army camps has received a somewhat wider publicity. The many complications and relatively high mortality among a group of physically perfect men was the occasion of deep concern to the government and furnished the stimulus for a number of fruitful pieces of research.

One interesting communication is that of Sellards,[1] who attempted to produce measles in susceptible human beings by inoculating them with blood taken from patients in the early stages of the disease. The subjects of the experiment were all soldiers who had volunteered for the purpose, but neither the eight susceptible individuals nor the two control immunes could be infected in this manner. (It will be remembered in this connection that Hektoen[2] has reported two successful inoculations on humans, while Anderson and Goldberger[3] apparently succeeded in transmitting the disease to monkeys by means of similar inoculation.) Some weeks after the above experiments, Sellards exposed two of the inoculated susceptibles to an early case of measles, and even applied some of the buccal and nasal secretions of the measles patient to the mouth, nose, throat, and eyes of the subjects, again failing to produce the disease.

The question which naturally arises is whether these individuals, giving no history of measles, in spite of the most careful search of their past lives, were really susceptible to the disease, and whether immunity was conferred by these inoculations. If it be possible to produce an active immunity to measles in this manner, a point which awaits the confirmation of further experiment, then the way has been opened for the perfection of a method which should result in the saving of hundreds of lives annually claimed by this disease.

Experimentation on human beings is only justifiable under certain rather extraordinary circumstances, but after all, affords information which can be obtained in no other way. Volunteers who go to the front for science have a right to expect every safeguard which can be thrown around them without jeopardizing the terms of the experiment. Thus, in the present instance, not only were physically fit men chosen, but every precaution was taken to lessen the chances of a serious outcome should these men develop measles:—before the experiment, tonsils, sinuses, middle ear were examined, latent tuberculosis eliminated as far as possible, and cultures to show the subject free from hemolytic streptococci, pneumococci, meningococci, diphtheria, and Pfeiffer bacilli. Careful nursing and rigid isolation were insisted upon as a matter of course in protecting the volunteers from intercurrent infections, as well as from spontaneous infection with measles.

T. C. H.

(1) Sellards, A. W.: Insusceptibility of Man to Inoculation with Blood from Measles Patients. Johns Hopkins Hosp. Bull., 1919, XXX, 343 and 257.

(2) Hektoen, L.: Experimental Measles, Jour. Infect. Dis. 1905, ii, 238.

(3) Anderson, J. F. and Goldberger, J.: Experimental Measles in the Monkey, Public Health Reports, 1911, XXVI, 847 and 887.

TOXINS AND ANTITOXINS OF BACILLUS DYSENTERIAE SHIGA

THE toxins and antitoxins of *Bacillus dysenteriae Shiga* form the subject of a recent report by Olitsky and Kligler.[1] They note that the toxin of the Shiga dysentery bacillus has been studied by a number of bacteriologists but that no agreement has been reached as to its precise nature. Some investigators have regarded this toxin as an endotoxin, and others as exotoxin.

Olitsky and Kligler isolated both an endotoxin and an exotoxin, the two toxins physiologically and biologically distinct. When injected intravenously into rabbits the exotoxin causes lesions in the central nervous system, such as hemorrhages and small areas of necrosis, and, also, causes paralysis in the animal. It does not produce any lesions of the intestinal tract. The endotoxin, on the other hand, causes edema, necroses, hemorrhages, and ulcerations in the intestines, but no lesion of the central nervous system. Anti-endotoxin serum was prepared, and was found to neutralize the endotoxin, but not the exotoxin. An anti-exotoxin serum was prepared, and this had a similar specific action on the exotoxin.

1. Olitsky, Peter K., and Kligler, I. J.: Toxins and Antitoxins of Bacillus Dysenteriae Shiga, Jour. Exper. Med., 1920, xxxi, 19.

They obtained from horses a potent serum which contained both anti-endotoxic and anti-exotoxic antibodies.

This investigation appears to be very important, for it demonstrates an anti-dysenteric serum which possesses neutralizing properties for both types of dysenteric toxin. It is probable that some of the poor results obtained with anti-dysenteric serum were due to the fact that immune bodies for one or the other of the two toxins has been absent.

It is to be hoped that commercial sera of the sort prepared by Olitsky and Kligler will soon be available for general use. It will be necessary, however, to find out whether the toxins of the other types of dysentery bacilli correspond to those found for the Shiga type. It also will be important to treat cases of summer diarrhea caused by dysentery bacilli with this new type of serum.

STANDARDIZING BACTERIAL SUSPENSIONS

IN the same number of the *Journal of Experimental Medicine*, Frederick L. Gates[2] publishes a method of standardizing bacterial suspensions. He has devised a simple instrument for determining the number of bacteria present in a cubic centimeter of a bacterial suspension. This instrument has to be standardized each time against a suspension of a given organism and, therefore, should be of value in making bacterial counts of vaccines containing only one organism. It apparently cannot be used in making counts when the type of organism is unknown, or where several organisms are present in an unknown proportion, as in the autogenous vaccines. In these cases we must still rely on the present methods for counting vaccines.

COMPLEMENT FIXATION IN DIAGNOSIS OF TUBERCULOSIS

THE conclusion is reached by W. H. Moursund[3] that "the complement fixation test for tuberculosis as described in his article is of no value as a diagnostic or prognostic aid."

It should be noted that the antigen used was Petroff's. This antigen is quite different from that devised by Miller. Miller has reported much better results with his antigen, than Moursund obtained. A number of articles, however, have appeared in the last several years, in which a variety of tuberculosis antigens were used. The general opinion of the various workers, with the exception of Miller, seems to be about the same as the conclusion arrived at by Moursund.

2. Gates, Frederick L.: A Method of Standardizing Bacterial Suspension, Jour. Exper. Med., 1920, xxxi, 105.
3. Moursund, W. H.: Complement Fixation in Diagnosis of Tuberculosis, Jour. Infect. Dis., 1920, xxvi, 85.

STUDIES ON ROCKY MOUNTAIN SPOTTED FEVER

A VERY comprehensive article by F. Burt Wolbach[4] has recently been published on Rocky Mountain spotted fever which includes an excellent historical review of the subject. There is also a complete description of the disease. Nothing especially new is brought out, but most of the pioneer work of Ricketts, and others, is verified and amplified.

The minute intracellular coccoid organism originally described by Ricketts was found also by Wolbach. This was found intracellularly, especially in endothelial cells at the region of the blood vessel lesions of the disease. Ricketts proved that the virus of the disease was not filterable through Berkefeld filters. Wolbach did not repeat this work, but made numerous and varied attempts at cultivating the organism, but was unsuccessful. There are many excellent illustrations and the article is well worth reading by anyone interested in the disease. W. T.

THROMBOPLASTIC AGENTS

ARTICLES by P. J. Hanzlik[5 6 7 8] and several different collaborators in recent issues of the *Journal of Pharmacology and Experimental Therapeutics*, on the subject of thromboplastic agents, report investigations on the subjects of blood-clotting efficiency of thromboplastic agents in vitro, of hemostatic properties of these agents under different conditions, and anaphylactoid phenomena from these agents.

They found thromboplastin and kephalin more efficient in vitro than coagulen, coagulose, and hemostatic serum. Both kephalin and thromboplastin lose their thromboplastic activity on standing. The hemostatic effects of these agents tested on animals in general tend to agree with their action in vitro. This could not be tested, however, as accurately as in the vitro experiments.

The thromboplastic agents rich in protein [Thromboplastin-Squibb and Armour and Hemo-

4. Wolbach, S. Burt: Studies on Rocky Mountain Spotted Fever, Jour. Med. Research, 1919, xli., November.
5. Hanzlik, P. J., and Weidenthal, C. M.: The Plasma and Blood Clotting Efficiency of Thromboplastic Agents in Vitro and Their Stability, Jour. Pharmacol. and Exper. Therap., 1919, xiv, 157.
6. Hanzlik, P. J., and Weidenthal, C. M.: The Hemostatic Properties of Thromboplastic Agents under Different Conditions, Jour. Pharmacol. and Exper. Therap., 1919, xiv, 189.
7. Hanzlik, J. J., and Tarr, Jesse: The Comparative Skin Irritant Properties of Dichlorathylsulphide ("Mustard Gas") and Other Agents, Jour. Pharmacol. and Exper. Therap., 1919, xiv, 221.
8. Hanzlik, P. J., Karsner, Howard T., and Fetterman, Joseph F.: Anaphylactoid Phenomena from Thromboplastic Agents, Jour. Pharmacol. and Exper. Therap., 1919, xiv, 229.

static Serum] produced anaphylactoid symptoms in guinea pigs when injected subcutaneously and intravenously, and caused death when large doses were injected intravenously. The injurious effect was found to be caused only in part by the preservative trikresol. Kephalin appears to be comparatively harmless as compared with the other thromboplastic agents studied. The authors note that the thromboplastin (Squibb) used was the ordinary variety, and not that marked "Thromboplastin Hypodermic." They cannot state whether the "Hypodermic" produces the same effects as the ordinary thromboplastin.

It is important to have learned that a certain amount of danger attends the use of these agents. It may be pointed out that the use of whole human blood, locally, or as a transfusion, is not attended by danger and probably is more efficient than such thromboplastic agents as those studied by these workers. W. T.

PNEUMOPERITONEUM

THIS new field of work bids fair to outstrip almost every other Roentgen procedure. Judged on its merits, its possibilities promise to enable roentgenologists with exactness to come to hitherto impossible conclusions in the diagnosis of abdominal pathology. This work was first done by a German, Prof. G. Rautenberg, in 1914. Two men in the United States, Stewart of New York, and Dr. B. Orndoff of Chicago, conducted independent investigations along this line. Dr. Stewart reported his work in a paper read at Saratoga Springs in the fall of 1919, before the American Roentgen Society. Dr. B. Orndoff reported his work at the meeting of the Western Roentgen Ray Society in Chicago, December 12, 1919.

As all Roentgen workers know, gas anywhere within the tissues renders more visible those structures lying under or above it. This accounts for the easy observation of the chest contents and the outlining of soft structures in the abdomen when gas is present in the gastro-intestinal tract. Even pelvic bones of heavy individuals may be easily outlined over the areas of gas in the intestines.

It is this principle which is utilized in pneumoperitoneum. The gas used includes filtered and washed air, carbon dioxid, oxygen, and nitrogen, each of them having a different time for absorption varying from thirty minutes to a week or ten days. The method of introduction into the peritoneal cavity is by means of a trocar attached to a rubber tubing connected directly to a gas tank. Interposed in this gas line there is an equilibrium gage, and a cotton filter to take out the moisture accumulated by the gas passing through the washing chamber. The trocar is pushed through the abdominal wall as is done in any paracentesis.

The amount of gas injected does not seem important, being determined by the tenseness of the abdominal wall. No serious effects are reported to have followed inflation of the peritoneal cavity. The patient is examined in both the upright and recumbent postures while the gas is being introduced, and afterward. Sometimes a slight feeling of pain and discomfort is felt under both scapulae and in the shoulders when the patient assumes the upright posture, but with a change to the recumbent position these symptoms are immediately relieved. The patient is best examined under the fluoroscope, where the patient can be rotated in any desired position.

As the gas enters the abdomen it is visualized as a bright spot on the fluoroscopic screen. Naturally it will rise to the highest possible level until it fills the entire peritoneal cavity. By rotating the patient, the subphrenic spaces can be made to fill and are distinctly seen; the diaphragm, instead of offering a tremendous resistance to the rays, as it usually does, now only shows as a thin curved line.

The liver falls away from its close relation to the peritoneum unless held down by adhesions in which event these may be clearly seen. In a similar manner the spleen and kidneys are also visualized, and any deviation from the normal easily demonstrated. By placing the patient in the Trendelenburg position the gas fills the pelvis and outlines the pelvic contents; the uterus, ovaries, and tubes become visible, especially if pathological. The possible sources of danger such as puncturing an artery, vein, nerve, or even a loop of intestine seem to exist in theory only, so far not a single case of punctured intestine having been reported. Another source of danger that has been discussed is that of infection which, however, should not be a cause of alarm, for the same aseptic precautions are observed as in any paracentesis or spinal puncture.

There are certain indications for this abdominal work. It should not be used in every case as a routine measure, but rather after all other means have failed, or in obscure cases with no definite findings.

A word of warning must be conveyed. In the proper hands it is a safe and valuable procedure, —an adjunct to the interpretation of abdominal pathology. It should be used only where it is possible to observe all the rules of asepsis and antisepsis. In the hands of those who are skilled in this work and who can correctly interpret the

findings, the procedure is full of possibilities. Care must be taken that a note of conservatism should echo throughout this entire work in order that so valuable a method should not be brought into the discard by its abuse in unskilled hands.

It is a marked step forward from the comparatively recent advent of the static machine, with its limited scope, to a technic which permits detection of peritoneal adhesions by means of pneumoperitoneum. ROBERT A. ARENS, M.D.

THE AMERICAN JOURNAL OF PHYSIOLOGY

SELDOM has an issue of a magazine been as rich in medical contribution as is the October issue of the *American Journal of Physiology*. The question of acidosis, that very complicated and yet important subject which deals with the normal and abnormal reaction of the human body, is discussed in two articles by Asada. The first[1] of these articles deals with acidosis during starvation. That there is a lowering of the alkali reserve during starvation is corroborated by these studies. The author, furthermore, finds a regular curve manifesting itself during starvation.

The second contribution[2] to acidosis is on the relation of acidosis to vital staining. The author finds that vital staining can not be accomplished by a single intravenous or intraperitoneal injection of lithium carmin in subtoxic doses in a healthy animal. If, however, an acidosis be first established, a single injection of the dye will give a satisfactory stain. In animals which have been vitally stained, an actual decrease in plasma bicarbonate occurs.

The author, therefore, draws the conclusion that it is incorrect to predicate the existence of specific stain-taking substances or granula in the cells; rather, vital staining with lithium carmin is due to the development of an acidosis which so alters the function of the body cells that the dye diffusing it is deposited in granula. This deposition corresponds to the precipitation from collodial solution of the dye when the normally alkaline solution is made acid in vitro.

In addition to the above mentioned contributions on acidosis, the same issue contains two important papers on the subject of catalase. Possibly the latest fashion in medical literature is to discuss the subject of enzymes. No enzyme, however, has attracted as much attention as the innocent catalase which, put in common terms, has the power of liberating oxygen when blood cells come in contact with hydrogen peroxid. Burge, of the University of Illinois, has seen the power of catalase in many diseases afflicting the human body. He is being followed by a host of other workers who consider catalase a very important enzyme disturbing the human elements. Burge even went one step further in suggesting therapeutic measures from the standpoint of catalase action. Frank Becht, of the Northwestern University Medical School, however, saw no marvel in catalase and considered it only a minor factor in human economy as well as in human diseases. He even went so far as to contradict all of Burge's work.

Far be it from us to undertake to decide between these two, but we would only like to call attention to the two articles on catalase in this issue of the *American Journal of Physiology*, one by Burge[3] continuing to attach extraordinary importance to the action of catalase, and the other article by Reimann and Becker[4] criticising the methods used for determination of catalase and seeing no special rôle played by catalase during anesthesia. To say the least these reports make interesting reading and are important from a historical standpoint, for it is well known all important matters have their pro and con at some stage of their development.

Besides the contributions already mentioned, there are many others of great interest to the scientist, and to the practitioner, that are contained in the pages of the October issue. Such, for instance, is the work on traumatic shock from Erlanger's laboratory,[5,6] and the work on "The Control of the Pylorus" from Carlson's laboratory.[7] The contributions are fundamental and make good reading matter.

THE HIGH COST OF SICKNESS

The cost of preventable sickness should not be charged to the high cost of living, according to William Fellows Morgan, trustee of the United Hospital Fund, of New York City. It is the business of everyone, he says, to see that the yearly cost of being sick is reduced. The $54,000,000 required annually in New York for the care of the sick but adds to the burden of the people. Sickness also eliminates productive labor. Such social and economic waste should not be permitted to continue.

Prevention of sickness where possible would to that extent make available the hospital service which is at present so inadequate for the demands made upon it. Mr. Morgan estimates that present institutions provide care for only about one in ten needing it.

1. Asada, Hazime: Acidosis During Starvation, Am. Jour. Physiol., 1919, I, 1.
2. Asada, Hazime: Vital Staining and Acidosis, Am. Jour. Physiol. 1919, I, 2.
3. Burge, W. E.: The Effect of Adrenalin, Desiccated Thyroid and Certain Inorganic Salts on Catalase Production, Am. Jour. Physiol., 1919, I, 165.
4. Reimann, Stanley P., and Becker, C. E.: The Catalases of the Blood During Anesthesia, Am. Jour. Physiol., 1919, I, 54.
5. Gasser, Herbert S., Erlanger, Joseph, and Meek, W. J.: Studies in Secondary Traumatic Shock. The Blood Volume Changes and the Effect of Gum Acacia on Their Development,' Am. Jour. Physiol., 1919, I, 31.
6. Erlanger, Joseph, and Gasser, Herbert S.: Studies in Secondary Traumatic Shock. Note on the Action of Hypertonic Gum Acacia and Glucose After Hemorrhage, Am. Jour. Physiol., 1919, I, 119.
7. Luckhardt, A. B., Phillips, H. T., and Carlson, A. J.: Contributions to the Physiology of the Stomach. The Control of the Pyloris, Am. Jour. Physiol., 1919, I, 57.

THE HEART IN ACUTE INFECTIOUS DISEASES—COLLECTIVE ABSTRACT

By WAYNE A. RUPE, M.D., Washington University Medical School, St. Louis, Mo.

IN reviewing comparatively recent literature on the heart in infectious diseases with especial reference to the acute specific infections in childhood, it seems that very little extensive work has been accomplished. The impetus given to investigation of such nature by the growing use of the electrocardiograph was effectively curtailed by the war. Increased interest in this problem is demonstrated at the present, however, in view of which fact this attempt to collect the most valuable recent contributions is made.

Symptoms of Myocardial Weakness

Chapin[1] has discussed the heart in infectious diseases in a general way. He points out the fact that the heart, and in fact the whole circulatory apparatus, is more or less profoundly affected by an increase in temperature, and that the reaction varies somewhat in different cases according to the nature of the agent producing the fever. In general, however, the clinical symptoms and signs of myocardial weakness are similar in all specific infections in the course of which such manifestations are wont to occur. One of the most characteristic of such symptoms is irregularity of the heart beat. Others are variations in the size of the heart and alterations in the character of the heart sounds. Murmurs of a functional nature, frequently the direct result of dilatation, are often observed. He says that physiological arythmias are usually abolished during excitation of the heart by fever except in those cases, such as tuberculous meningitis, in which central vagus stimulation is a prominent feature.

Nobécourt[2] also discusses the syndrome of myocardial insufficiency occurring as a complication of acute specific infections. Cases in which such a condition develops readily group themselves either among (1) those in which physical signs of myocardial weakness are present, but which are unaccompanied by subjective symptoms, or (2) among those in which develop marked symptoms referable to cardiac embarrassment.

(1) Cases which fall into the former classification usually present one or more of a distinct group of features. Temporary or persistent dilatation is frequent; if temporary, it is subject to recurrence. Variations of rhythm are frequently the only phenomena presented. Tachycardia or bradycardia are not rarely observed; the latter occurs with especial frequence during the convalescent period of diphtheria, pneumonia, and typhoid fever, and is often accompanied by sinus arythmia. Usually the heart sounds lack muscular quality. The pulmonary second sound is frequently accentuated. These signs are detected only on detailed physical examination and to such features the term latent myocardial syndrome is applied.

(2) In the second group, the patient is often dyspneic, cyanotic, extremely restless, or comatose. If conscious, he is apprehensive. He vomits frequently and his extremities are cold. There is precordial pain. The heart is usually greatly dilated and the sounds are extremely weak. Gallop rhythm or more complex irregularities may be present. The pulse is usually rapid, irregular, and of low tension. The urine is scanty and highly colored. Fever may or may not be present. Often the temperature is subnormal. The liver is sometimes engorged. Such cases are often rapidly fatal. Pathologically, the myocardium alone is affected, as a rule.

Speaking of the occurrence of endocarditis during the course of acute specific infections, Chapin[1] goes on to say that the appearance of a murmur is often the first definite evidence of the development of valvular disease. In most of such cases the condition is not recognized until late in the convalescent stage. Early pericarditis is usually only discovered by auscultation during the course of routine examination. With extensive effusion there is an increase in the outline of the cardiac dullness. The outline is pear-shaped with the base downward. In combination with such an increased area of dullness, the absence of the apical impulse is significant. Because of the extreme distention of which the pericardial sac is capable, the embarrassment of the heart action is not often marked. Rise in temperature, otherwise unexplainable, should attract attention to the possibility of the existence of valvular involvement or pericarditis.

Newburgh,[3] in discussing cardiovascular disturbances in acute infections, says that the vaso-

1. Chapin, C. S.: The Heart in Infectious Diseases, Boston Med. and Surg. Jour., 1916, clxxiv, 230.
2. Nobécourt, P.: Les Syndromes Myocarditiques au Cours des Infectious Aigues chez les Enfants. Jour. de méd. de Paris, 1913, xxxiii, 459.
3. Newburgh, L. H.: The Use of Strychnin and Caffein as Cardiovascular Stimulants in Acute Infectious Diseases, Arch. Int. Med., 1915, xv, 458.

motor apparatus suffers no damage and that the functional activity of the myocardium is, as a rule, not seriously impaired. He argues logically against the use of strychnin and caffeine as cardiovascular stimulants.

The Heart in Diphtheria

Cardiac complications were the cause of 15 per cent of the deaths in a large epidemic of diphtheria according to Hitchcock [4]

Of all specific infections, diphtheria exercises the most especial effect upon the heart. Cardiac involvement in this disease is so frequent and of such vital significance as to occasion a considerable amount of investigation of its cause and manifestations. The electrocardiograph has proved of inestimable value in the early detection and diagnosis of such involvement.

The Myocardium

The myocardium is the most frequent site of cardiac pathology in diphtheria. Hume[5] describes the clinical picture presented in such cases.

In confirming the diagnosis of myocarditis, Hecht[6] uses the x-ray. He is able to demonstrate dilatation in the roentgenogram in 25 per cent of the cases. The electrocardiograph, also, is coming into general use as a means of detecting the existence of myocardial involvement.

Hecht[6] says that an accurate estimate of the integrity of the heart muscle can be drawn from the comparison of wave excursions of the electrocardiogram. He shows tracings from severe and from fatal cases which he interprets, from the diminution in the excursions or the complete absence of the P, R, and T waves, as indicative of severe heart damage. Frequently in such cases the excursion of the S wave is increased, returning to normal as the patient improves. In one patient with clinical manifestations of cardiac syncope, and with extrasystoles of left ventricular origin, the R waves in leads I and II were so low as to render distinction from the P wave difficult. As a similar case recovered the R wave increased in amplitude, a negative P wave assumed its normal upright position, and a delay in conduction became shorter. In another case in which nodal rhythm was present, the impulse apparently arising in the junctional tissue to the ventricular side of the A-V node, the P wave was iso-electric, the T wave diphasic, and the R wave low and broad. Later, the R wave was definitely split. As recovery progressed, the P wave became positive and both the P and the R waves resumed more nearly normal distances of excursion. Hecht assumes that such wave form changes are significant of pathology of the myocardium.

Rohmer[7] observed similar changes in the forms of the waves of the electrocardiogram and construed them as evidence of gross myocardial insufficiency.

In patients dying from cardiac failure, Hecht[6] usually finds more or less diffuse fatty degeneration of the auricular and ventricular muscle fibers, and diffuse round cell infiltration of the interstitial tissue.

In the cases examined by Hume[5] the ventricles seemed to be the especial sufferers in the pathological process. They were usually grossly damaged, while the auricles suffered to a minor extent. Fatty degeneration of the muscle fibers and round cell infiltration of the interstitial tissue were the most marked pathological processes.

Similar localization of the most extensive pathology in the ventricles is described by Price and Kennedy.[8] Degeneration of the auricular myocardium was slight. There was no evidence of damage to the nerve trunks or the ganglionic masses in the posterior auricular walls.

Tanaka[9] concludes that lesions of the conduction system are certainly most rarely the cause of cardiac death. Rather it is dependent mainly upon damage to the myocardium, with or without accompanying conduction tissue destruction. Of 15 cases dying in cardiac syncope studied by him, fatty myocardial degeneration was present to a greater or less degree in 14. Interstitial infiltration with polynuclear and mononuclear leukocytes and eosinophiles was observed in 6 of those cases. Fragmentation of the muscle fibers was observed only once. It is also reported by Fleming and Kennedy.[10]

Heilhecker[11] reports similar findings in 4 of 6 cases examined by him. The 2 cases in which there was no myocardial pathology had not exhibited clinical manifestations of myocarditis, and are described as dying of toxemia. He emphasizes the occurrence of hyaline degeneration of the muscle fibers in addition to the fatty degeneration usually described.

4. Hitchcock, J. S.: Fatal Cases of Diphtheria, Boston Med. and Surg. Jour., 1916, clxxv, 718.
5. Hume, W. E.: A Polygraphic Study of Four Cases of Diphtheria, with a Pathological Examination in Three Cases, Heart, London, 1913-1914, v, 25.
6. Hecht, A. F.: Der Mechanismus der Herzaktion im Kindersalter seine Physiologie und Pathologie, Erge. d. inn. Med. u. Kinderh, Berlin, 1913, xi, 324.
7. Rohmer, P.: Electrocardiographische und Anatomische Untersuchungen uber den Diphtheria-herztod und dessen Beziehungen zum Reizleit ungs system, ztschr, f. exper. Path. u. Ther., 1912, xi, 426.
8. Price, F. W., and MacKenzie, Ivy: Auricular Fibrillation and Heart Block in Diphtheria, Heart, London, 1911-1912, iii, 233.
9. Tanaka, T.: Uber die Ueranderungen der Herz Muskulator, vor Allom des Atrioventrikular Bündels bei Diphtheria; Zugliech ein Beitrag zur Frage der Selbstandigkeit des Bündels, Virchows Arch. f. path. Anat., 1912, ccvii, 115.
10. Fleming, G. B., and Kennedy, A. M.: A Case of Complete Heart Block with an Account of Post-Mortem Findings. Heart London, 1910-1911, ii, 77.
11. Heilhecker, W.: Zur Pathologie des Hisschen Atrioventrikular Bündels bei dem Adam-Stokesschen Symptomenkomplex (und bei Diphtheria) Frankfurter Ztschr, f. Path., 1911 viii, 319.

The interstitial changes were striking in the cases reported by Aviragnet, Lutembacher, and Le Soudier[12]. The parenchymatous lesions were no less noteworthy but were not of the fatty and fibrous nature so often described. They occurred principally in the left ventricle and were most severe near the primary focus of the interstitial lesions. The fibers were swollen, vacuolated, often fragmented, and in the center of the lesions there was only a liquefied mass with débris of cardiac fibers and some mononuclear cells. Striations had disappeared, and the nuclei were pale and misshapen. Inflammatory nodules consisting of masses of mononuclear cells and fibroblasts were seen on the left side of the interventricular septum.

Nuzum,[13] in examining the heart in 29 cases of diphtheria, found an eosinophilous myocarditis in 7. Such a condition was not present in many cases of death from various other acute infectious diseases. It is also mentioned by Tanaka.[9] The degree of eosinophilic infiltration exhibited no relation to the severity of the clinical symptoms or to the extent of the myocarditis.

D'Espine and Mallet[14] reported the presence of parietal thrombi in both auricular and ventricular walls as well as a parenchymatous myocarditis in a case of diphtheria dying in cardiac syncope.

Irregularities and Functional Disturbances

Hume,[5] in discussing cardiac irregularities in diphtheria, finds that premature auricular contractions occurred in 5 of 18 cases which he collected. They were the only type of irregularity noted in mild and moderately severe cases with the exception of sinus arythmia. They were unaccompanied by major symptoms of cardiac embarrassment and usually persisted for only a few days. In 4 cases described by him, premature beats, certainly of auricular origin in 2 cases and probably so in the other 2, were the precursors of, or accompanied by, other and graver irregularities. They were frequently observed in combination with other severe disturbances of rhythm. Gunson[15] reports auricular extrasystoles as occurring in 28 per cent of 120 cases of diphtheria. He considers them as frequently of no significance, as they are often unattended by subjective symptoms. In 5 severe cases they occurred very frequently and were accompanied by decompensation and gallop rhythm.

Premature ventricular contractions were noted as the only irregularity in one of Hume's 18 cases. In another case they were accompanied by auricular extrasystoles.[5] Gunson[15] failed to note them at all in his study of 120 cases.

Auriculoventricular extrasystoles were noted by Gunson.[15]

Among Hume's[5] 18 cases 2:1 heart block was noted in 3, and complete heart block in 7. In one of his fatal cases 2:1 heart block was present and block of an undetermined rhythm was probably present in another. Hecht[6] reports 2 cases of heart block; in one of them the rhythm was 2:1 and neither the auricular nor the ventricular rate was markedly or constantly accelerated by the administration of atropin, even when given in sufficient amount to produce poisoning.

Block of all degrees from isolated blocked beats to complete dissociation of the auricles and ventricles is certainly by no means rare.

Hume[5] noted nodal rhythm in 7 of his 18 cases. Such independent contraction of the auricles and ventricles in response to simultaneous-stimulation from a common source in the A-V junctional tissue was certainly noted in 2 of his fatal cases, and probably in another. Hecht[5] and Belskii[16] described cases of nodal rhythm. In several of the cases described the region of the S-A node and the node itself have been involved in severe degenerative processes while the region of the A-V node has been unaffected. Hence a pathological basis for the shifting of the impulse origin-site has been established.[17]

Wilson[17] quotes Lewis, and Meek, and Eyster in explaining the mechanism of nodal rhythm. The development of such a rhythm is the result of a displacement of the pace-making function from the S-A node to a point lower down in the conduction system. Such displacement has been demonstrated by these men in dogs following a slowing of the heart by vagus stimulation.

Hume[5] noted the occurrence of auricular flutter in two fatal cases. The auricles were contracting at a rate of nearly 500 beats per minute. He assumes these auricles to have been in flutter because there is no record of over 350 beats per minute in cases of flutter in adults.

Tachycardia is as frequently encountered in diphtheria as in scarlet fever according to Hecht.[6] He shows electrocardiographic tracings of cases with very high pulse rate, short or absent diastolic pauses, and superposition of the P and T waves. Hume[5] met with paroxysmal tachycardia in a fatal case of diphtheria. He is uncertain as to whether the generating focus was in the auricular muscle or the A-V junctional tissue.

12. Aviragnet, E. C., Luthembacker, R., and Le Soudier, Mlle.: Heart in Diphtheria, Arch. d. mal. du coeur, 1918, xi, No. 6, 241.
13. Nuzum, F.: Eosinophilous Myocarditis in Diphtheria, Jour. Am. Med. Assn., 1919, lxxxiii, 1925.
14. D'Espine, A., and Mallet, H.: Un Cas de Thrombose Cardiaque dans la Diphtheria, 1912, xxxii, 60.
15. Gunson, E. B.: Cardiac Arhythmia in Diphtheria, Brit. Jour. Child. Dis., 1914, xi, 385.
16. Belskii, A.: Beobachtungen über Atrioventrikular Automatic im der Infektions krankheiten, Ztschr. f. klin. Med., Berl., 1909, lxvii, 515.
17. Wilson, F. N.: Recent Progress in Pediatrics, Résumé on the Circulation, Am. Jour. Dis. Child., 1915, x, 376.

Two cases of sinus bradycardia with pulse rates of 44 and 60 respectively were observed by Hecht.[6]

Sinus arythmia was observed by Hecht.[6] He considers it of no significance in diphtheria. It was noted as being of an exaggerated nature in two cases of severe nephrosis complicating diphtheria.

Hecht[6] concludes that, as a rule, the conduction time is not markedly affected in diphtheria. The average P-R interval in 46 cases was 0.130 seconds to 0.140 seconds. In one case of 2:1 heart block described by him the conduction time was 0.180 seconds to 0.220 seconds and was increased to 0.240 seconds by the use of digitalis. Four months later the tracings in this case were essentially normal.

Conduction Tissue Pathology

There has been much discussion as to the frequency of the occurrence of clinically demonstrable disturbances of conduction without demonstrable lesions of the conduction system. Certainly there is often no parallelism between the anatomical lesions and such conduction changes as are manifested clinically. Anatomical lesions of the His bundle alone are rare, although it is not uncommon to note disturbances of conduction without clinical evidence of myocardial damage. Often lesions of the myocardium cause no clinical symptoms, but invariably the slightest lesion of the bundle produces marked clinical manifestations of conduction changes.[12]

Hume[5] reports two cases of gross irregularity in one of which premature auricular beats, nodal rhythm, and auricular flutter were demonstrated; but the nearest approach to a lesion of the A-V node or bundle found at autopsy was a slight increase in vascularity. The postmortem findings were similar in the other case, in which he was unable to determine whether the irregularity was nodal rhythm or heart block associated with auricular fibrillation. Rohmer[7] observed two cases of complete auriculoventricular dissociation. Pathological examination in these two cases revealed scarcely any damage to the bundle itself —certainly not enough to account for the clinical findings, although there was extensive fatty degeneration of the muscle fibers and round cell infiltration of the interstitial areas of the interventricular septum. He concludes that the diphtheria toxin exerts an influence on the functional activity of the bundle, but that it rarely so damages it as to produce demonstrable histological changes. It is assumed from such descriptions that lesions of the conduction tissue are certainly not always present in cases of clinically demonstrable irregularity.

On the other hand, the extensive parenchymatous degeneration in the case of complete heart block described by Magnus-Alsleben[18] involved the A-V bundle. Fleming and Kennedy[10] report a case of heart block in diphtheria in which the A-V node and the proximal part of the bundle were involved in an inflammatory process consisting of intense round cell infiltration and marked capillary engorgement. They, with Magnus-Alsleben, hold that there is a close connection between disease of the bundle and disturbances of conduction. Hume[5] reports a case of heart block with nodal rhythm in which there was an advanced acute inflammatory process throughout the region of the S-A node and a definite capillary engorgement in the A-V node and bundle. Price and MacKenzie[8] report postmortem findings in a case of block and auricular fibrillation. The S-A node and the tissue about it were normal as were the A-V node and bundle. However, the interventricular septum in the immediate neighborhood of the A-V node was the seat of an extensive inflammatory infiltration. It is possible that the conductivity of the specialized tissue was disturbed by the gross neighborhood destruction. Aviragnet, Lutembacher, and Le Soudier[12] describe a case in which marked irregularity—extrasystoles, partial block, and, finally, complete block—occurred transiently. For a few days before death the rhythm was normal. Upon postmortem examination the bundle was found to be the seat of extensive interstitial and myocardial degeneration. Reviewing a number of cases reported in the literature, they state that a physiological basis for conduction changes must often be assumed as frequently no anatomical lesion is present to explain them. These authors sum up the situation as it stands at present very well.

Tanaka[9] reports 3 cases of marked irregularity, 2 of them definitely stated as being heart block. In these cases there was extensive degeneration of the A-V bundle. He thinks that the irregularities were certainly due to lesions of the conduction system. In 14 of 15 fatal cases examined by him there was more or less extensive degeneration of the conduction tissue.

In the 3 cases mentioned above there was little or no mycocardial pathology. He takes the stand that death as a result of conduction tissue pathology alone is rare. Heilhecker[11] demonstrated fatty degeneration in the A-V bundle in 2 of 4 cases dying in cardiac syncope. No mention is made of the existence of any irregularity, however. He quotes the case described by Magnus-Alsleben, and concludes that dissociation or lesser

18. Magnus-Alsleben, E.: Zur Kenntnis der Vorubergehenden über leit ungs-storungen des Herzens, Ztschr. f. klin. Med., Berl., 1910, lxix, 82.

grades of conduction change are liable to occur when the conduction tissue becomes involved in an inflammatory process; but he questions the assertions of Moneckenberg and Amenomiya to the effect that death might often be attributed to isolated involvement of the conduction tissue without coexistent myocarditis. In a very recent article Nuzum[13] concludes that there is a possibility that the various types of arythmia in diphtheria are due to a compression of fibers in the bundle of His as a result of moderate cloudy swelling or to degenerative changes in this system. Such changes in the conduction tissue are never proportional to the degenerative changes present in the myocardium.

The Endocardium and the Pericardium in Scarlet Fever

Chapin[1] says that endocarditis and pericarditis are especial complications of scarlet fever. They usually develop during the second or third weeks of illness, and a rising pulse rate is the commonest early sign. Nobécourt and Milhit,[19] discussing cardiovascular disturbances during the course of scarlet fever, say that endocarditis occurred in 0.58 per cent of the cases. It may occur early or late in the course of the infection. It is often very late. Although rarely fatal, it seldom clears up completely. Most frequently, though not as often as has been supposed, it assumes a chronic course, *i.e.*, the murmur, and perhaps vague symptoms referable to the organic lesion, persist. Mitral regurgitation is the most frequent lesion. Pericarditis occurs alone or in association with endocarditis. As a rule, it is latent and subsides rapidly. It is described as dry, serofibrinous, or purulent. The purulent cases are always fatal. Both conditions are ascribed to secondary infection.

The onset of acute endocarditis has been reported as occurring during practically all of the acute infections but, according to Nobécourt,[20] 4 to 5 per cent of the cases occurring before the third year are due to scarlet fever. Of course, it is very rare during the first two years of life and a vast majority of the cases are rheumatic in origin. Murmurs in such cases as do develop at this age are described as difficult to distinguish from functional murmurs. They are usually soft, tending to disappear and recur. There is usually slight dilatation, but rarely pain, palpitation, or dyspnea. Fever may or may not be present.

19. Nobécourt, P., and Milhit, J.: Les Troubles Cardio-Vasculaires dans la Scarlatine Paris Méd., 1913-1914,xv, 165.
20. Nobécourt, P.: Les Endocardites Aigues de L'enfance, Jour. de méd. de Paris, 1913, 2. s., xxv, 259.
21. Nobécourt, P.: Rheumatisme Articulaire Endocardite et Pericardite dans la Scarlatine, Jurie des Camiers & Tournier, Bull. et mém. Soc. de méd., de hôp. de Paris, 1915, 3. s., xxxix, 793.

In another article the same author, with his associates des Camiers and Tournier,[21] discusses the frequency of the occurrence of endocarditis and pericarditis in scarlet fever. Of 262 cases studied by them, 22 developed rheumatism and of these 22, six developed endocarditis which was associated in two cases with pericarditis. The mitral valves were affected in all 6 cases, and in 2 the aortic valves were involved as well. All 6 cases recovered.

Gunson[22] reports a case of scarlet fever seen on the thirtieth day of illness in which there was no previous history of rheumatism, or of symptoms referable to organic heart disease. At the time of admission there was present a mitral regurgitant murmur. A few days later a pulse irregularity due to premature contractions was detected, this irregularity lasting two days. Ten days after admission pericardial friction rubs were heard, and various joints became involved in an acute inflammatory process. The patient died and autopsy revealed the existence of a recent fibrinous pericardial exudate. The parietal and visceral pericardial layers were completely but loosely adherent. There were numerous small subepicardial hemorrhages. The mitral and tricuspid valves were thickened, and there were vegetations on the mitral valves as well as on the wall of the left auricle. Goffe[23] reports a case of pericarditis developing in the course of scarlet fever in a patient which had a previous history of rheumatism, but none of cardiac trouble. The patient developed symptoms of myocardial insufficiency and died in cardiac syncope. A double murmur was present, presystolic and systolic at the apex, with a pericardial friction rub. At postmortem examination vegetations were found on the mitral and aortic valves; both pericardial layers were covered with recent exudate.

Cantley[24] reports a case of pulmonary regurgitation developing during the course of an attack of scarlet fever. The right side of the heart was enlarged and there was a long, low, diastolic murmur heard best over the pulmonary valve area. It varied in intensity in all directions. The patient recovered.

Myocardial Changes in Scarlet Fever

Nobécourt[25] emphasizes the occasional occurrence of myocardial dilatation during the course of scarlet fever. In such an event such symptoms

22. Gunson, E. B.: Pericarditis in Scarlet Fever. Before Roy. Soc. of Med., Dec. 11, 1914. Rev. Brit. Jour. Child. Dis., 1915, xii, 50.
23. Goffee, E. G. L.: Pericarditis in a Case of Scarlet Fever. Before the Roy. Soc. of Med., Dec. 11, 1914, Rev. in Brit. Jour. Child. Dis., 1915, xii, 50.
24. Cantley, E.: Case of Pulmonary Regurgitation Before Roy. Soc. of Med., March 26, 1915, Rev. Brit. Jour. Child. Dis., 1915, xii, 143.
25. Nobécourt, P.: Les Dilatations et Hypertrophies du Couer, les Troubles du Rhythme Cardiaque Chez les Enfants, Jour. de méd. de Paris, 1913, 2s, xxv, 915.

of myocardial weakness as dyspnea, cyanosis, extreme restlessness, and scanty albuminous urine are evident[19]. Cases of sudden death in typical cardiac syncope in scarlet fever have been reported.[22 23] Nobécourt and Milhit[19] also say that symptoms referable to the heart occur in cases of severe scarlatinal nephritis. The clinical picture of myocardial insufficiency is presented by sudden dilatation of the heart and sudden enlargement of the liver. Gallop rhythm was noted at some time or other in practically every case of nephritis. In such cases it is evident that a latent myocarditis had long been present.

Hecht[6] advises the exercise of considerable reserve in the interpretation of form changes of the electrocardiogram, but he thinks that such changes are very probably indicative of myocardial pathology. He studied 59 cases of scarlet fever with the electrocardiograph. During the height of the illness, in 9 cases, the excursions of the S wave in one or more leads was often markedly increased resuming more nearly normal excursions as recovery progressed in some of them. To such sudden increase of the S wave he attaches grave portent, although it is often significant only of the normal relative preponderance of one ventricle over the other. Splitting of the R or S waves was definite in 4 cases and indefinite in 3. Only one case in which a split R wave was observed was severe; hence he assumes that such splitting may be accidental although it is rarely observed in normal electrocardiograms. The P wave was split in one or more leads in 7 cases, only once in all 3 leads. As he had never noted this occurrence in normal tracings, he assumes that it is an indication of over-exertion of the auricles. As it occurred only in severe or fatal cases, it must be considered as of grave import. Very low excursions of the R wave were noted twice. In one case this wave resumed a normal height as the patient improved. In 2 rapidly fatal cases the T wave was unusually high. He concludes that such increased excursion is not necessarily an indication of good quality of the muscle although possibly a toxic central or peripheral accelerator stimulation might account for both the tachycardia and the high T wave. No evidence of severe disturbance of conduction was noted. In one case the length of the P-R interval was 0.180 seconds to 0.200 seconds, in two cases 0.180 seconds, in ten 0.160 seconds, and in one 0.156 seconds. Hecht considers these as delays since his own figures of the P-R interval in twenty-five normal cases averaged 0.140 seconds. In most of these cases the conduction time became shorter as the patient improved. He cites a case in which a P-R interval of 0.190 seconds at the height of the illness dropped to 0.160 seconds fourteen days later.

Usually 0.170 seconds is considered as the upper limit of the normal P-R interval.[17]

In a study of cardiac pathology in scarlet fever, Stegemann[26] found that myocardial fatty degeneration, interstitial round cell infiltration, and areas of necrosis occurred frequently in the long drawn out cases but are seldom seen in the rapidly fatal ones. He concludes that the toxin of scarlet fever probably exerts no pathological influence upon the conduction system.

Irregularities and Functional Disturbances

Nobécourt and Milhit[19] do not think that functional derangements of the heart in scarlet fever are the result of definite myocardial pathology. Rarely are myocardial lesions found to be present upon postmortem examination of cases in which such functional manifestations have been exhibited.

Monier-Vinard and Meaux-Saint-Marc,[27] studying the cardiac rhythm in 270 cases of scarlet fever, considered tachycardia to be the rule during the febrile period. They attached an unfavorable import to the existence of severe tachycardia. Hecht[6] observed a primary tachycardia in 9 of 59 cases. Electrocardiographically these cases usually showed a normal conduction time, but practically no diastolic pause. In 2 of the cases in which the pulse rates were 186 to 200, superposition of the P and T waves was noted. Nobécourt and Milhit[19] say that tachycardia is usually present from the onset even in the mildest cases and persists until the afebrile stage. In severe cases the heart often assumes a rate of 180 to 200 beats per minute. Nobécourt[25] also speaks of the frequency with which tachycardia persists far into the convalescent stage. Tachycardia is usually associated with low blood pressure.

Bradycardia attracts considerable attention in recent discussions since its occurrence has only lately been noted. In their study Monier-Vinard and Meaux-Saint-Marc affirm that bradycardia occurred at some time during the course of the infection in 32 per cent of the cases. It usually occurred after the fall of the temperature or during the fading of the rash. It was much more frequent in adults, occurring in 76 per cent of the cases. The average pulse rate in the cases in children was 64, in adults 50. They considered bradycardia to be an indication of an exaggerated

26. Stegemann, A.: Die Pathologisch-Anatomischen Veranderungen der Myokards und der Herzgang lieu beim Scharlach, Jahrb. f. Kinderh., 1914, lxxx, 491.

27. Monier-Vinard & Meaux-Saint-Marc: Sur le rythme du cœur, dans la scarlatine la bradychardie des scarlatineaux, Bull. et mém. Soc. méd de hôp. de Paris, 1914, xxxvii, 614.

inhibitory vagus action. It was transient, irregular, and easily affected by numerous influences, such as slight temperature rises, or by mild exercise. It was considered as of negligible significance. It was noted late in the second week of illness by Hecht[6] in only 2 of his 59 cases. One patient had a severe nephritis. In neither case was the pulse high during the febrile period. He attributes its causation to increased vagus inhibition. Nobécourt and Milhit[19] observed bradycardia only occasionally.

Sinus arythmia was observed in 10 of Hecht's 59 cases.[6] In 5 of these cases there was no clinical evidence of organic heart disease; in 2, however, there were minor evidences of myocardial insufficiency and in 3, organic valvular defects. The arythmia was of an especially exaggerated character in two cases of marked bradycardia. Nobécourt and Milhit[19] made a similar observation. They say that sinus arythmia is the most frequent disturbance of rhythm in scarlet fever and that it is rarely observed during the febrile stage.

Extrasystoles are mentioned as occurring during the course of scarlet fever by Nobécourt and Milhit,[19] Nobécourt,[25] and by Gunson.[22] They are more frequent in adults than in children, and have been observed only in cases of myocarditis or nephritis associated with hypertension.

Belskii[16] has demonstrated the existence of nodal rhythm in cases of severe scarlatinal myocarditis.

Pneumonia

Organic Lesions. Involvement of the endocardium, myocardium, and pericardium are not infrequently observed in pneumonia.[1] Nobécourt[28] says that pericarditis is as frequently a complication of pneumonia as of local pyogenic infections in children under five years of ago. Tivey[29] reports a case in an infant of nineteen months. Nobécourt[25] remarks upon the occasional occurrence of the myocardial syndrome and Chapin[1] dilates upon the same condition. He attributed the critical collapse so often observed in pneumonia as due either to myocardial weakness or vasomotor paresis. The obstruction to pulmonary circulation is given as one of the chief causes for the strain upon the heart.

Nobécourt[25] mentions the frequent occurrence of the various physiological arhythmias in convalescence from pneumonia.

Zahorsky[30] reports a case of paroxysmal tachycardia following bronchopneumonia. For 8 months following the initial illness there were recurrent attacks in which the pulse rate rose to 200 or over per minute. During such attacks the patient was badly prostrated. Parkinson[31] describes a case of heart block occurring in pneumonia. Magnus-Alsleben[18] presents polygraphic tracings showing partial dissociation occurring during the course of convalescence from pneumonia in a patient who had received digitalis medication. He mentioned a similar phenomenon as having occurred during three other cases of pneumonia, the irregularity being transient in each case. Hence he assumes that there was no gross pathological damage to the conduction system.

Digitalis Medication

Cohn[32] gives digitalis to pneumonia patients routinely as an effort toward preventing auricular fibrillation. He gives digipuratum in doses of 0.4 gm. daily. The total amount given is never more than 2.0 gm.

In investigating the action of digitalis upon the heart in pneumonia, Cohn and Jamieson[33] studied 105 cases with the electrocardiograph. Digitalis was administered to 49 cases, while 56 were studied as controls. The increased length of the P-R interval and changes in the form of the T wave were taken as criteria of the effect of the drug.

Changes in the conduction time, or in the form of the T wave were noted after practically the same lapse of time and the administration of similar amounts of digitalis as had been previously observed in afebrile cases. Of 36 cases of pneumonia receiving sufficiently large doses (0.8 gm. of digipuratum by mouth) to produce an effect on normal cases, 97 per cent showed an effect. Changes were noted both in the P-R intervals and the T wave in 77.7 per cent; in the T wave alone in 16.6 per cent; and in the P-R interval alone in 2.7 per cent. Changes developed more quickly and oftener in the T wave than in the P-R interval. Cohn thinks that it is unlikely that the toxin elaborated in pneumonia has any special influence on the T wave. Because of this he considers his results as purely digitalis effects.

Of the 50 controls receiving no digitalis, no changes were noted in the electrocardiograms of 88 per cent; there were changes in both the P-R interval and the T wave in 4 per cent, and in the T wave alone in 8 per cent.

In 5 cases in which the auricles were fibrillating, the high ventricular rate was reduced

28. Nobecourt, P.: Les Pericardites Aigues chez les Enfants, Jour. de méd de Paris, 1913, 2 s. xxv, 383.
29. Tivey, E. A.: Pericarditis Complicating Pneumonia, Med Jour. of Australia, 1917, ii, 227.
30. Zahorsky, J.: Bradycardia and Tachycardia in Young Children, a Report of Two Cases, Interstate Med. Jour., 1915, xxii, 57.
31. Parkinson, J. P.: Pneumonia with Hyperpyroxia, Lancet, London, 1917, i, 184.
32. Cohn, A. E.: The Use of Digitalis in Pneumonia, New York Med. Jour., 1917, cv, 234.
33. Cohn, A. E., and Jamieson, R. A.: Digitalis in Pneumonia, Jour. Exper. Med., 1917, xxv, 65.

during the febrile period by the use of digitalis.

As regards cardiac pathology in pneumonia the work of Liebmann is quoted by Cohn.[33] In 3 of 11 cases Liebmann found inflammatory infiltrations so located that they might readily have produced disturbances of rhythm. Eyselein is also quoted. In only 4 of 23 cases examined by him was there evidence of myocardial damage. This consisted of fatty degeneration, mild in one case and advanced in 3.

Heart Studies in Influenza

Lebreton[34] presents the fullest early account of influenza endocarditis. He analyzed 21 cases of endocarditis in which the influenza bacillus was obtained either from sputum or blood culture; but in only 3 of these were the organisms recovered in pure culture from the affected heart valves. In 9 more cases other organisms as well as the B. influenzae were recovered. In Lebreton's judgment these 9 cases might truly be classified as of influenzal etiology.

Endocarditis may occur during the early febrile period or may develop during convalescence. It is much less frequent in children than in adults. Phenomena leading to its diagnosis in influenza are palpitation, precordial pain and tenderness, chills, or fever unexplainable otherwise. Its development may be anticipated with some accuracy if a blood pressure which is already low falls still lower. The development of a murmur or a change in the character of a murmur already present, should such a situation exist, in the presence of the above mentioned features clinches the diagnosis. It is rarely malignant. Frequently in such cases there are terminal pulmonary infarcts, or renal, hepatic, splenic, or arterial emboli.[34]

Simons,[35] in an analysis of 325 cases of acute and chronic endocarditis, considers influenza endocarditis as rare, and never the cause of the chronic infectious, endocarditic processes. He seems to think that in those cases of chronic endocarditis considered as of influenzal etiology the probability is that the influenza infection is engrafted upon a previously existing rheumatic process. Of 96 cases of chronic endocarditis analyzed by Simons the influenza bacillus was considered by Libman as the infective agent in only 4. It is assumed that 11 cases, 6 of which were diagnosed clinically and 5 at postmortem examination as influenza endocarditis, were acute.

Malloch and Rhea[36] report 2 cases of endocarditis developing during the course of acute illnesses. Both patients died of bronchopneumonia. The influenza bacillus was recovered in smear or culture from the terminal bronchioles, the heart blood, and the aortic cusps of the one case; and from the terminal bronchioles and the aortic and mitral vegetations of the other. In the first case, there were fresh vegetations on the aortic cusps and evidences of a recent toxic myocarditis. In the latter case, vegetations were found on both aortic and mitral valves. There was also an excess of clear fluid in the pericardial sac and minute subepicardial hemorrhages. They conclude that of 47 cases reported in the literature, including their own, only 16 were certainly of influenzal etiology.

Eichhorst[37] affirms that mechanical damage of the heart is rare in influenza. He observed 2,411 cases of influenza with 351, 14.6 per cent, deaths. In only 2 cases were there fresh valvular vegetations. These were situated on the mitral valve and their presence had not been suspected during life. They were so insignificant as to have certainly not disturbed cardiac function. In 2 cases a serofibrinous pericarditis occurred. No gross pathology of the heart muscle was noted nor in the many hearts examined miscroscopically was there any evidence of fatty degeneration or interstitial infiltration. In 4 non-fatal cases mitral insufficiency developed. These cases had no evidence of previously existing valvular defects. This complication occurred at the end of the first week in 3 cases and at the end of the second week in the other, at that time afebrile. All the cases were discharged without evidence of existing valvular defect, although one patient returned 2 weeks later complaining of precordial pain.

Irregularities and Functional Disturbances

In contradistinction to the rarity of organic lesions, Eichhorst[37] observed functional derangements so very frequently as to conclude that they were essentially specific peculiarities of influenza.

Tachycardia was observed in four cases, in both the febrile and the convalescent period. It was quite transient. Eichhorst[37] goes so far as to say that tachycardia was the initial symptom of influenza in one case. Smith[38] studied ninety-five cases of tachycardia observed in convalescence from influenza pneumonia. There was no organic cardiac basis for the tachycardia in any of these cases. In 37.8 per cent of the cases there was a previous history of cardiac irritability and of a possible etiologic factor for this irritability in a great majority of these cases; 40 per cent, however, had no previously established physical basis

34. Lebreton, J.: Theses de Paris, 1912, No. 196.
35. Simons, Irving: Bacterial Endocarditis, Quart. Jour. Med., 1913-1914, vii, 291.
36. Malloch, A., and Rhea, L. J.: Endocarditis Due to Bacillus Influenza, Quart. Jour. Med., 1919, xii, 174.
37. Eichorst, H.: Influenza Heart, Cor.-Bl. f. schweiz. Aerzte, 1919, xlix, No. 8, 225.
38. Smith, F. M.: Tachycardia Following Influenzal Pneumonia, Jour. Am. Med. Assn., 1919, lxxiii, 1685.

for the tachycardia, although many of this group normally had rapid pulses. In 20 per cent hyperthyroidism was suspected.

The atropin and epinephrin tests were given in fifty cases. The results in nineteen suggested a hypotonic vagus nerve, and in twelve a hypersensitive sympathetic nervous system.

Bradycardia was encountered very frequently both in the febrile and the convalescent periods by Eichhorst.[37] It was most frequently observed in cases with severe bronchopneumonia. In contrast to tachycardia, it was quite persistent. It was present in some cases for as long as six months after the initial illness. There were very minor subjective symptoms connected with it.

Extrasystoles were observed frequently. They were transient or persistent, and their subjective symptoms were of negligible importance.

Cardioneuroses were observed in three patients in whom the infection ran a prolonged febrile course.

Cockayne,[39] like Eichhorst, finds bradycardia a very frequent occurrence in influenza. Altogether 168 cases were observed, in 132 of which the pulse rate fell below fifty per minute; fifty-five cases were studied with the polygraph and it was found that in nineteen of these the bradycardia was due to partial heart block. Sinus block was present in one case; prolongation of the a-c interval in two; 2:1 block in nine; and 3:1 block in six. It is probable that more such cases would have been demonstrated had all the cases been studied polygraphically. All these patients had pneumonia. He concludes that it is probable that bradycardia and heart block are frequently the effects of the toxin of the influenza bacillus. Atropin in sufficient doses to produce poisoning had no appreciable effect in the cases of block, and but very little in the simple bradycardias. The effect of amyl nitrite in the latter group was very transient. Hecht[6] noted 2:1 block in one case of influenza and complete dissociation in another.

Hecht[6] says that sinus arhythmia occurs frequently in measles, usually appearing in an exaggerated form in the postfebrile stage. According to Hecht, sensitiveness of the vagus nerve is one of the outstanding features of measles. He shows electrocardiographic tracings of three cases in which the postfebrile sinus arhythmia was very marked. He also had a case in which 2:1 rhythm developed, and another in which there was complete dissociation of the auricles and ventricles. Influenza was possibly a complication in both these patients, however, and Hecht attributes the conduction disturbance to influenza rather than to measles. At any rate, he could find no report of conduction derangement in measles.

There have been no investigations of any note concerning the behavior of the heart in meningococcus meningitis, and very few case reports. Hecht[6] made electrographic tracings from cases of meningitis in which the heart rate was irregular. He concluded that all such arhythmias were simply manifestations of vagus pressure. They were not usually relieved by lumbar puncture, but frequently the increased inhibitory function of the vagus was counteracted by the use of atropin. As might be expected in vagus stimulation, the pulse was usually slow.

Of 265 cases of epidemic meningitis treated by Herrick[40] at Camp Jackson, pericarditis was a complication in eleven and endocarditis in one. There were only three cases of pericarditis and none of endocarditis among those patients who received intensive intravenous and intraspinal therapy. Mackarell[41] reports postmortem findings in two cases of meningococcus endocarditis, the lesions occurring on the mitral valve in both cases.

Nobécourt[25] mentions the frequent occurrence of bradycardia in meningitis and ascribes it to abnormal excitation of the vagus nucleus or trunk.

Typhoid Fever and Heart Lesions

Nobécourt[25] and Chapin[1] mention the occurrence of myocarditis and endocarditis in typhoid fever and also the development of the physiological arhythmias during the febrile course or in convalescence. With tachycardia the blood pressure is often low. Bradycardia is attributed to stimulation of the vagus center by the typhoid toxin.

Magnus-Alsleben[18] describes the occurrence of 2:1 heart block with lengthening of the a-c interval in a case of typhoid fever. There were no subjective symptoms and the irregularity persisted for only a few days. From this fact he argues against the existence of a gross anatomical lesion of the conduction system.

Tuberculosis

Delorme[42] says that next to rheumatism, tuberculosis is the most frequent cause of pericarditis with adhesions. He discusses the physical signs of cardiopericardial adhesions in such cases. Hypertrophy and dilatation are frequent, of course.

39. Cockayne, E. A.: Heart Block and Bradycardia Following Influenza, Quart. Jour. Med., 1919, xii, 409.

40. Herrick W. W.: Early Diagnosis and Intravenous Treatment of Epidemic Cerebrospinal Meningitis, Jour. Am. Med. Assn., 1918, lxxi, 1, 612.

41. Mackarell, W. W.: Malignant Endocarditis as a Complication of Epidemic Cerebrospinal Fever, Jour. Roy. Army Med. Corps, Lond., 1915, xxv, 353.

42. Delorme, E.: Des signes et die dingnostic de la symphyne cardio-pericardique, Gaz. de hôp, 1914, lxxxvii, 147.

Fixation of the apex, once considered practically pathognomonic, is a helpful diagnostic feature when accompanied by other definite signs. The disappearance of the apex impulse, pericardial undulation as demonstrated by the x-ray, systolic retraction of the apex, epigastrium, and of the posterior intercostal spaces, invariability of the outline of cardiac dullness, diminution of the diaphragmatic movements, inspiratory recession of the lower sternum and chest, are all valuable signs.

Nobécourt[43] states that tuberculosis, next to rheumatism, is the most frequent cause of pericarditis in children more than seven years of age. He says also[43] that the mediastinum is nearly always involved in pericardial adhesions. In tuberculous pericarditis, the heart is rarely large and may be atrophied. It is often associated with tuberculous peritonitis.

43. Nobécourt, P.: Pericardites Chroniques et Symphyses du Pericarde chez les Enfants. Jour. de méd. de Paris, 1913, 2. s., xxv, 719.
44. Cowan, J., Harrington, A. W., and Riddell, J. R.: On Pneumo-pericardium, Quart. Jour. Med., 1913-1914, xii, 165.

INFLUENZA AND PREGNANCY—COLLECTIVE ABSTRACT

By S. A. WEINTRAUB, M.D., St. Louis

IN view of the possibility of a return of last year's pandemic of influenza, it becomes desirable to study literature for an answer to two questions: (1) Does pregnancy act as a predisposing factor in the contraction of influenza? and (2) Does influenza take a more serious course with a higher mortality when complicated by pregnancy?

Influenza is chiefly a disease of adult life, and attacks individuals in their physical prime. In approximately 50 per cent of the cases the patients are found between the ages of twenty to thirty years.[1] We know that pregnancy occurs more frequently during the first ten years of marriage, that is, at approximately the same age period, between twenty and thirty. It follows, then, that influenza is most likely to attack women during the period of their highest productivity; so that while statistics would apparently show the pregnant woman more susceptible to influenza, this fact might be solely due to this coincidence. It is the view of Kosmak[2] and Farrar[3] that pregnancy does not increase the susceptibility to influenza.

Influence on Mortality Rate

Does influenza present a higher mortality when complicated by pregnancy? In discussing this question several facts must be taken into consideration. We must differentiate between the uncomplicated mild form of influenza and the severe form with complications, and must also consider in which period of pregnancy the disease is contracted.

In the so-called mild form of influenza, we find the usual infection of the upper respiratory tract with the general systemic complaints, but without pneumonic symptoms. In these cases the patient, as a rule, recovers occasionally after having aborted.[4]

The frequency with which pregnancy is interrupted seems to depend upon the severity of the infection, toxemic or septicemic type, the general physical condition of the patient, and the stage of pregnancy. Even without complications, influenza shows various degrees of virulence, variations in temperature, in the general systemic symptoms and in cough. The symptoms vary with the individual. A more pronounced toxic or septic process would, of course, exhibit a greater tendency to interfere with the further progress of pregnancy. A state of good health is undoubtedly a factor in combating the septic type of the disease and so offers protection against its untoward effect on pregnancy. Healthy pregnant women react as well as the non-pregnant.[2]

The earlier the stage of pregnancy the greater the frequency of abortion from influenza.[3] This is probably due to the fact that the ovum in its earlier stages is not yet firmly imbedded. The high percentage of spontaneous abortion in early pregnancy must also be taken into consideration.[5]

Bland[6] found that about 40 per cent of pregnant women attacked by influenza aborted or miscarried, while Harris, in a series of 626 uncomplicated cases collected from literature, figured the frequency of interruption as 26.3 per cent. The percentage would be higher, of course, if only the early pregnancies were considered.

Influenza, however, produces a distinct lowering of resistance towards bacterial invasion, and this is the accepted cause of its frequent compli-

1. Wachter, F.: Deutsche med. Wchnschr., 1918, xliii, 1183.
2. Kosmak, G. W.: Am. Jour. Obst., 1919, lxxix, 238.
3. Farrar, L. K. P.: Am. Jour. Obst., 1919, lxxix, 229.
4. Welz, W. E.: Am. Jour. Obst., 1919, lxxix, 247.
5. Harris, J. W.: Jour. Am. Med. Assn., 1919, lxii, 978.
6. Bland, P. B.: Am. Jour. Obst., 1919, lxxix, 184.

cation with pneumonia.[7] This fact obviously applies to the pregnant woman as well as to the non-pregnant. The percentage of influenza patients developing pneumonia varies from 5 to 10 per cent solely among male patients,[8] to 16.4 per cent considering both males and females.[9] The incidence of pneumonia in influenza, however, is markedly greater in pregnant than in non-pregnant women. Calderon[9] states that 78.4 per cent of his pregnant influenza patients developed pneumonia, while Harris reports only 50 per cent. In their opinion, an apparent lack of resistance of the gravida against pulmonic complications is responsible for the high mortality of all types of pneumonias among pregnant patients. This tendency of pregnancy towards pulmonic involvement is particularly evident in cases of influenza. A further analysis of the figures of Bland and Harris, given above, shows a marked increase in the percentage of interrupted pregnancies among patients suffering from an influenzal pneumonia. According to available figures in complicated cases, the interruption of pregnancy seemingly occurs as frequently in the early months of gestation as in the latter months;[10] but if the unknown number of spontaneous abortions could be subtracted, we might find that later abortions and premature labors probably are more frequent than the early interruptions. This relation does not seem to prevail in the simple influenza cases without complications.

A Serious Aspect

The interruption of pregnancy presents a serious aspect.[6] In 743 cases mentioned by Harris in which pregnancy continued undisturbed, there was a maternal mortality of only 16 per cent; while in 468 cases in which pregnancy terminated prematurely the mortality amounted to 41 per cent. He draws from this fact the conclusion that interruption of pregnancy renders the prognosis more grave. This is evidently true, but the fact must be considered that the termination of gestation often is but a secondary manifestation of the severity of the infection and that if the toxemia, or more probably the septicemia, is of severer nature, pregnancy is more apt to be disturbed. Not the expulsion of the contents of the uterus in itself, but the greater violence of the infection in cases of interruption, makes the outlook for the patient less hopeful. This is particularly true if the termination occurs before or during the height of the attack. When the interruption occurs after the crisis or during the lysis, the prognosis both for the mother and the viable fetus is better. In Lupton's[11] five cases of whom four died, the one surviving patient had the crisis six days before delivery. Bland reports a maternal mortality of 69 per cent; Welz, 92.3 per cent; Woolson and Conley, 51.5 per cent; and Calderon, 65 per cent. Harris concludes that the mortality is greater in the last three months of pregnancy, figuring it as 60 per cent. This is an appalling percentage if compared with the already high mortality of 33.3 per cent for non-pregnant women.[10]

Why do influenza and influenzal pneumonia terminate pregnancy so frequently? Before attempting to answer this question we must consider the etiology of this disease.

Kinsella[12] and Ives[13] claim that influenza is a disease caused by some as yet unknown agent. On the other hand, Duval and Harris[14] report that the influenza bacillus was recovered from pneumonic lungs in 94 per cent of cases and could be recovered from sputum in every instance, although others[15] had claimed that the "nasal application of a filtrate from a pneumonic lung failed to call forth any abnormal symptoms." Blood cultures were negative, but in three fatal cases the influenza bacillus was recovered from the heart blood. They, therefore, conclude "that only occasionally, and then under conditions not understood, the Pfeiffer bacillus gives rise to a septicemia." Goodpasture[16] reports that in the early part of the epidemic the Pfeiffer bacillus was found at postmortem in 86 per cent of the lungs, often in pure culture; while, later in the epidemic, hemolytic streptococci were found in the lungs of 100 per cent of the cases at necropsy, in the majority of instances in pure culture. The British Influenza Committee[17] reports that the Pfeiffer bacillus was recovered from the blood only in two out of sixty-eight attempts. Other writers, Halliday,[18] Gatch and Wittingham,[19] Keegan,[8] Fildes, Baker, and Thompson,[20] and Little and Gorofolo[21] claim negative blood cultures. Lampe[22] believes that all manifestations of the various general symptoms are secondary to the unrecognized influenza virus. Another claim[23] that the causative virus might be found in the

7. MacCullum, W. G.: Jour. Am. Med. Assn., 1919, lxxii, 720.
8. Keegan, J. J.: Jour. Am. Med. Assn., 1918, lxxi, 1051.
9. Calderon, F.: Jour. Am. Med. Assn., 1919, lxxiii, 982.
10. Woolston, W. J., and Conley, D. O.: Jour. Am. Med. Assn., 1918, lxxi, 1898.
11. Lupton, F. A.: South. Med. Jour., 1918, xi, 754.
12. Kinsella, R. A.: Jour. Am. Med. Assn., 1919, lxxiii, 982.
13. Ives, G.: Interstate Med. Jour., 1918, xxv, No. 12.
14. Duval, C. W., and Harris, W. H.: Jour. Infect. Dis., 1919, xxv, 384.
15. Wahl, H. R., White, C. R., and Lyall, H. W.: Jour. Infect. Dis., 1919, xxv, 419.
16. Goodpasture, E. W.: Jour. Am. Med. Assn., 1919, lxxii, 724.
17. The Influenza Committee of the Advisory Board to the D. G. M. S., France: Brit. Med. Jour., 1918, ii, 505.
18. Halliday, G.: Brit. Med. Jour., 1918, ii, 159.
19. Gatch, O. H., and Wittingham, H. E.: Brit. Med. Jour., 1918, ii, 82.
20. Fildes, P., Baker, S. L., and Thompson, W. R.: Lancet, London, 1918, ii, 697.
21. Little, T. R., Garofolo, T. R., and Williams, P. A.: Lancet, London, ii, 34
22. Lampe, R.: Med. Klin., 1918, xiv, 858.
23. Zamanouchi, T., Sakakami, K., and Iwashimi, A.: Lancet, London, 1919, January, 1919.

blood of practically all influenza patients is based on the following experiment: A filtrate of blood from influenza patients was injected into the noses and throats of six healthy individuals, who all developed influenza symptoms. Stine[24] attributes influenza to a diplostreptococcus found both in the nasal secretions and blood stream in 80 per cent of 1,020 cases of pneumonitis studied by him.

Attribute Influenza to Filtrable Virus

Bradford, Bashford, and Wilson,[25] after a most thorough investigation, attribute influenza to a filtrable virus which was seen microscopically in the filtrate and has been cultivated therefrom. They found the organism in the sputum in every instance, and state that "during the early stages of the disease the organism is present in the blood and can be recovered therefrom as early as twenty-four hours after the onset of the illness. It persists in the blood until about two days before the declension of the fever." They claim that all the lesions of influenza have been reproduced in animals by the injection of pure cultures of an organism isolated from man, and that, therefore, all the requirements necessary to establish that organism as the cause of the disease have been fulfilled. They further believe that this organism, circulating in the blood, produces a general septicemic condition and not primarily a local respiratory disease. They also emphasize the presence of "marked lesions of a special character in the smaller blood vessels." Their communication is probably the most valuable in the maze of influenza literature. If their findings by further investigations should be confirmed, a clearer understanding of this disease and its complications can be expected and a more rational therapy with corresponding lowering of mortality might be hoped for.

Renal Complications in Influenza

The general effect of influenza on the kidneys is interesting in our special problem. Keegan reports that in about two-thirds of his cases the urine proved characteristic of severe febrile disease, but in not one case a nephritis developed. Similar observations were made by Little, Gorofolo, and Williams. Cultures of the urine were found negative by Fildes, Baker, and Thompson. Bradford, Bashford, and Wilson, however, describe an influenzal nephritis and mention two cases. In one the filtrable virus was recovered from the blood and urine; in the other from the blood during life, and from the kidneys at postmortem only.

24. Stine: Jour. Missouri Med. Assn., 1919, xvi, 10.
25. Bradford, J. R., Bashford, E. F., and Wilson, J. A.: Quart. Jour. Med., 1919, xii, 259.

We must assume, therefore, that the septicemic condition, produced by this unnamed virus, leads to marked circulatory disturbances. This is most noticeable in the lower respiratory tract and the "peculiar sodden hemorrhagic lung is the result." On this injured lung is planted a secondary infection which apparently varies in different localities. While the lung is the most frequent and prominent organ affected, other tissues in the body also suffer, and it seems likely that the uterus might become involved in this manner. Hemorrhages from the non-pregnant uterus during the attack have been observed by Strouse and Bloch.[26] Practically all patients began to menstruate between the first and third day of the infection. Ameiss[27] noticed marked menstrual disturbances during the disease. Calderon also recorded the premature appearance of the menstrual flow in these cases. Engel[28] found menstrual anomalies in over 29 per cent of his cases. He mentions an interesting case in which both adnexa had been removed, followed by amenorrhoea; however, during a subsequent attack of influenza this patient had a rather profuse uterine hemorrhage. This certainly is corroborative evidence for the assumption that the metrorrhagia in influenza patients is directly due to endometrial lesions and not ascribable to abnormal ovarian function. Unfortunately, but little laboratory work has been done on these local uterine processes. In the gravid uterus Lwow[29] was able to find decidual hemorrhages an extremely important observation, because these hemorrhages in the decidua seem analagous to those of the hemorrhagic lung. The deduction seems justifiable that a septicemic condition which produces hemorrhagic lesions in the lung likewise may react on the smaller blood vessels of the gravid uterus, and thus be responsible for these hemorrhages in the decidua. If this etiologic relation of local hemorrhage to the general septicemia exists, then it may be expected that the cases of hemorrhagic pulmonary involvement will show also a greater frequency of decidual hemorrhage. This assumption is confirmed by statistics. Harris, as previously stated, reports that pregnancy was interrupted in 26.3 per cent of uncomplicated and 51.6 per cent of complicated cases.

Deductions from Bacterial Flora

Some deductions concerning the intrauterine bacterial flora can be made from the bacteria found in the vagina. Thaler and Zuckerman[30] discov-

26. Strouse, S., and Bloch, L.: Jour. Am. Med. Assn., 1918, lxxi, 1568.
27. Ameiss, F. C.: Am. Jour. Obst., 1899, xxxix, 509.
28. Engel, G.: Centralbl. f. Gynäk., 1897, xxiv, 746.
29. Lwow, J. M.: Centralbl. f. Gynäk, 1894, xliii, 1087.
30. Thaler and Zuckermann: Monatschr. f. Geburtsch. u. Gynäk., 1915, xli, 377.

ered influenza bacilli in the vagina. The presence of streptococci, staphylococci, and other organisms in the vagina have been recorded.[31]

Nurnberger[32] found bacteria in the uterus in all influenza cases, chiefly long chains of streptococci in pure culture, and occasionally pneumococci, or a mixed flora. However, streptococci may be seen in the lochia of puerperal cases, at first, without rise of temperature.[33] Hintze[34] reports several cases of post-influenzal infectious processes of the genital tract involving the parametrium and the peritoneum. Zweifel[35] believes that in the presence of a systemic influenza infection, the streptococcic infection of the uterus is only a secondary process, possibly due to an injury of the endometrium by the general infective agent. Doederlein[36] even doubts that the genital organs can remain germ-free in any case of severe general infection. Nurnberger points out two possible explanations for the presence of the bacteria found by him in the puerperal uterus:

1. That a change in the mucosa, probably produced by the influenzal poison, favors the growth of bacteria ascending from the vagina.
2. That the uterine infection is hematogenous, carried from other parts of the body by the blood stream to the uterine cavity.

He emphasizes the fact that a secondary localization of the infection in the genitals has been observed also in erysipelas, furunculosis, purulent otitis media, mastitis, and especially tonsillitis; but that, in general, the ascension of the organism from the lower genital tract (vagina) up to the uterus is the more satisfactory explanation for the presence of these bacteria in the uterus.

Causes of Interruption of Pregnancy

The frequency of premature termination of pregnancy has alreay been mentioned. More will have to be said concerning the causes of this occurrence. Opinions are diverse and contradictory. Hintze and Ameiss place responsibility on either a high temperature, severe cough, or infection. Farrar believes that in the early months a hemorrhage occurs into the ovum, causing its expulsion; while in the later months the toxins affect either the decidua or the fetus directly, causing its death followed by its expulsion. In the opinion of Calderon the toxins act directly upon the uterus, inciting contractions. Lwow's important observation of hemorrhages into the decidua already has been mentioned. Such hemorrhages in the serotina, obviously will disturb the foetal circulation and tend to separate the ovum from the uterine wall.

The general conclusion would be that the more virulent type of cases would more likely develop a hemorrhage into the mucosa of the uterus, and so more frequently would show early terminations of pregnancy. A lesser degree of virulency may permit the pregnancy to proceed to its normal end, or at least until after the height of the attack. Under these conditions, obviously the outcome for the patient will be more favorable. On the other hand, the infection in some instances may so overwhelm the patient that death ensues before pregnancy is interrupted by the virulency of the attack.

The Effect on Labor

A similar diversity of opinion exists in regard to the effect of the influenza infection on labor. Bland has not noticed any unusual features during the progress of labor. Ameiss and Farrar, on the other hand, believe that labor becomes tedious due to a tendency to uterine inertia. Kosmak and Woolston and Conley think that labor in these patients is rather rapid and easy. Welz emphasizes the reduced sensitiveness to pain from the uterine contractions. Many of the patients are in a stupor as a result of the intoxication and show certain phases of amnesia. The very difference in the observations of the various writers increases the probability that as a whole labor does not vary markedly from the normal.

Puerperium and Post-Abortive Conditions

A tendency to retain the after-birth has been recorded.[6] The bleeding is prolonged and involution of the uterus arrested during the period of fever.[37] Foul odor of lochia, and subinvolution of the uterus have been mentioned.[34] It seems probable that the subsequent hemorrhage, the character of lochia and involution, to some extent, are dependent upon the localization and severity of the infection. Also, in this respect a certain analogy with the restoration of the affected lung tissue can be seen.

Condition of New-Born

Holt[38] is of the opinion that young infants are immune to the infection. Jacobi[39] never saw a child less than one year of age suffering from influenza. On the other hand, Townsend[40] re-

31. De Lee, J. B.: Principles and Practice of Obstetrics, (Saunders) 1918, Third Ed.
32. Nurnberger, L.: Monatschr. f. Geburtsch. u. Gynäk., 1918, xlviv, 233.
33. Doederlein: Arch. f. Gynäk., Bd. 31.
34. Hintze: Centralbl. f. Gynäk., 1896, li, 1311.
35. Zweifel: Centralbl. f. Gynak, 1896, li, 1313.
36. Doederlein: Centralbl. f. Gynäk., 1896, 1312.
37. Moeller, G.: Deutsche med. Wchnschr., 1900, xxix, 467.
38. Holt, L. E.: Arch. Pediat., 1891
39. Jacobi, A.: Arch. Pediat., 1891, viii, 27.
40. Townsend, C. W.: Arch. Pediat., 1891, viii, 26.

ports a case of congenital influenza in a two weeks premature infant. The maternal influenza commenced one week previous to labor. Both mother and child recovered from the attack. Also, Woolston and Conley mention two cases of bronchopneumonia developing eighteen to twenty-four hours after birth, in infants of mothers suffering from influenza. Abt[41] describes a two weeks premature infant born about thirty hours after onset of an uncomplicated influenza. The child died on the third day of life with marked symptoms of bronchopneumonia and the necropsy showed a streptococcic septicemia. Moeller believes that a light form of influenza occurs in practically all new-born infants of mothers affected by the disease. A better understanding of the effect of influenza on both the pregnant mother and the newborn child can be obtained by comparison with other infectious and contagious diseases which show some resemblance to influenza. Measles, ordinarily a mild disease of childhood with unknown etiology, shows a marked increase of mortality when affecting the pregnant woman. De Lee places the maternal mortality of measles at 15 per cent and Esch[42] at 18 per cent. The latter reports a fetal mortality of 52.4 per cent, and emphasizes that 72 per cent of children born during a measle attack of the mother, either exhibit the symptoms of the disease or develop them shortly thereafter. He believes that the remaining 28 per cent of these infants which did not develop measles, either had become immunized before birth or were protected by the impermeability of the placenta. In typhoid fever, pregnancy terminates prematurely in about two-thirds of cases, especially in the early months.[31] Fetal death is a frequent occurrence and is due to a direct transmission of the typhoid bacillus into fetal circulation, and the fetus is overcome by a typhoid septicemia.[43]

Condition of Placenta

The placenta shows no gross placental changes.[6] Very little has been reported on the microscopic picture of this tissue.

Treatment of the Infection

It is beyond the scope of this review to discuss the general treatment of this infection and we shall limit ourselves to special therapeutic problems offered by the pregnant woman. The usual hygienic measures, fresh air, nourishing food, and early and complete rest in bed, seemingly aid the pregnant woman in combating the infection. By themselves, however, such measures prove insufficient. The septicemia frequently overwhelms the individual in spite of these precautions.

The specific serum treatment of influenza obviously will not be developed until the offending organism is definitely established.

In view of the evident fact that a simple uncomplicated influenza does not greatly endanger the pregnant woman, we can safely recommend that such cases be permitted to pursue their natural course. In cases of severe type, especially in early pregnancy, abortion will probably occur in spite of all efforts. Medicinal treatment offers no hope in the attempt to avoid the abortion. Induced abortions or labors produced in the interest of the mother will not improve but rather tend to aggravate the general condition of the patient.[3] Norris[44] reports two cases of simple influenza with pronounced toxemia of pregnancy on whom he induced labor on account of the latter condition. Both patients recovered, but he counsels against this procedure as a routine in influenza in view of the frequency with which these uteri become infected. As previously stated, this fact is generally recognized and contraindicates all vaginal manipulations in pregnant women suffering from influenza. Obstetricians are divided in their views concerning the management of pregnant women in the presence of an influenza pneumonia. The majority of authors advocate conservatism and only a few favor interference with the further progress of pregnancy. In the view of De Lee, Kosmak, Farrar, Welz, and many others, artificial interruption has a tendency to increase the maternal mortality. Koblanck[45] is sure that emptying of the uterus does not improve the maternal chances and Welz considers all efforts to even hasten delivery as harmful. Bumm[46] reports a vaginal Cesarean section performed in a case of influenzal pneumonia with marked dyspnea and cyanosis. A premature fetus was removed. He believes that the beneficial influence of such an operation is due to the loss of blood and the relief of the pressure against the lungs by the enlarged uterus. Strassman,[47] for these same reasons, considers immediate emptying of the uterus indicated in pneumonia cases. Another observation recorded by Heppner[48] may be mentioned in this connection more as a curiosity. He performed an abdominal Cesarean section immediately after the patient had died of a

41. Abt, J. A.: Jour. Am. Med. Assn., 1919, lxxii, No. 14.
42. Esch, P.: Zentralbl. f. Gynäk., 1918, xlii, 105. Zentralbl. f. Gynäk., 1918, xlii, 121.
43. Williams, J. W.: Obstetrics, (Appleton) 1913, Third Ed., 491.
44. Norris, R. C.: New York Med. Jour., 1918, cviii, 924.
45. Koblanck: Monatschr. f. Geburtsch. u. Gynäk., 1918, xlviii, 444.
46. Bumm, E.: Monatschr. f. Geburtsch. u. Gynäk., 1918, xlviii, 444.
47. Strassmann: Monatschr. f. Geburtsch. u. Gynäk., 1918, xlviii, 444.
48. Heppner, M.: Jour. Am. Med. Assn., 1919, lxxii, 727.

bronchopneumonia. He recovered a premature living child, which, however, twenty-five days later died of a croupous pneumonia.

In the light of all available information, briefly outlined in the foregoing pages, but a few definite conclusions are permissible.

Pregnant women more often than non-pregnant women develop pulmonary complications in the course of an influenza infection. A concurrent pregnancy undeniably increases markedly the already high mortality of influenza pneumonia. Therefore, influenza represents a very serious disease for the pregnant woman. A co-existing pregnancy requires no particular change in the customary medicinal and hygienic-dietetic treatment of the disease. Spontaneous abortions, especially early in pregnancy, are likely to occur; but the spontaneous expulsion of the uterine contents in any stage of pregnancy does not noticeably alter the chances of the mother. This can not be surprising. The most careful studies in the possible relation of influenzal infection to the uterus seem strongly to support the assumption that local uterine lesions, developing secondarily as the result of the general toxemia or septicemia in the severer cases, in the main are the cause for the premature expulsion of the uterine contents. Therefore, but little could be expected from artificial interruption as a therapeutic measure, suggested by some writers. The desired beneficial result for the mother through relief of pressure against the diaphragm and through loss of blood, probably is more than outweighed by the unavoidable untoward effect of any operation performed on a very seriously sick patient, and by the increased danger of uterine septic infection. It is important to remember that an improvement of the mother's condition has been noticed chiefly in those cases in which the spontaneous expulsion of the fetus occurred after the mother had passed the crisis. Any artificial interruption obviously would be instituted before that time, *i.e.*, in a period of the pneumonia when even spontaneous labor seemed to aggravate the condition.

IMPROVES RURAL HEALTH ADMINISTRATION

A campaign financed jointly by Federal, state and local authorities is being conducted throughout the state of Virginia with the purpose of improving health administration in the rural districts.

MEDICAL BENEFITS UNDER COMPENSATION LAWS

The following tabular statement published by the United States Bureau of Labor Statistics shows briefly the maximum medical benefits provided under the various compensation laws:

It will be noted that three states—Alaska, Arizona, and New Hampshire—furnish no medical service except that in fatal cases involving no dependents the expenses of last sickness shall be paid by the employer. Six compensation acts provide unlimited service. Nine laws place no limitation upon the period during which treatment shall be furnished, but do limit the amount; while nine limit the period, but do not limit the amount. All of the other laws place limitations upon both period and amount.

MAXIMUM PERIODS AND AMOUNTS OF MEDICAL SERVICE UNDER VARIOUS COMPENSATION LAWS.

State	Maximum period	Maximum amount	State	Maximum period	Maximum amount
Alabama	60 days	$100	New Jersey	4 weeks [1]	[1] $50
Alaska			New Mexico	2 weeks	$50
Arizona			New York	60 days [1]	Unlimited.
California	Unlimited	Unlimited.	North Dakota	Unlimited	do.
Colorado	60 days	$200	Ohio	do.	[1] $200
Connecticut	Unlimited	Unlimited.	Oklahoma	60 days [1]	[1] $100
Delaware	2 weeks	$75	Oregon	Unlimited	[1] $250
Hawaii	Unlimited	$150	Pennsylvania	30 days	[1] $100
Idaho	do.	Unlimited.	Porto Rico	Unlimited	Unlimited.
Illinois	8 weeks [1]	[1] $200	Rhode Island	4 weeks	do.
Indiana	30 days [1]	Unlimited.	South Dakota	12 weeks	$150
Iowa	4 weeks	[1] $100	Tennessee	30 days	$100
Kansas	50 days	$150	Texas	2 weeks [1]	Unlimited.
Kentucky	90 days	$100	Utah	Unlimited	$500
Louisiana	Unlimited	$150	Vermont	2 weeks	$100
Maine	30 days [1]	[1] $100	Virginia	30 days	Unlimited.
Maryland	Unlimited	$150	Washington	Unlimited [2]	do [2]
Massachusetts	2 weeks [1]	Unlimited.	West Virginia	Unlimited	$600
Michigan	90 days	do.	Wisconsin	90 days [1]	Unlimited.
Minnesota	do [1]	[1] $100	Wyoming	Unlimited	$100
Missouri	8 weeks	$200	United States	do.	Unlimited.
Montana	2 weeks	$50			
Nebraska	Unlimited	$200			
Nevada	90 days [1]	Unlimited.			
New Hampshire					

[1] Additional service in special cases or in discretion of commission.
[2] Employees must pay one-half of medical cost.

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

FEWER FREE HOSPITAL PATIENTS

THE fortieth annual report of the United Hospital Fund of New York, as analyzed by the *New York Times*, indicates a decrease of 16 per cent in the proportion of hospital patients receiving free treatment in the last eight years, and in this interval the proportion of patients who pay all or part of the ward rate has increased 17 per cent. In the opinion of Frederick D. Greene, general secretary of the organization, this showing indicates that people generally are in better circumstances. It is evidence, also, that the working people are not inclined to impose on hospitals.

The United Hospital Fund began in 1879 with nineteen hospitals, caring for 8,688 patients during the year, with receipts amounting to $26,455.07. During the past year the organization gave support to forty-six hospitals, caring for 147,422 patients and giving 2,443,562 days' treatment, and the receipts amounted to $221,535.34. The service rendered by the organization, however, is not to be measured solely by the number of patients cared for. It has been of inestimable service to hospitals and to the public in the promotion of accurate hospital statistics, and in securing a uniformity of records which permit intelligent comparison.

The Hospital Fund finds that there are 180,000 people, on the average, who are sick in New York every day. It is estimated that only one in ten of those who need hospital care get it. "Moreover," says the report, "32 per cent of our young men were rejected as unfit for the army—16 per cent for serious, and 16 per cent for minor defects. As this ratio is true of us all, it means that at least one million people in New York City have serious ailments and another million labor under lesser handicaps. . . . The need of hospital care is far beyond hospital facilities, and it is imperative that there be wise hospital planning for the whole city, and the largest return for every dollar spent."

It is now costing about $9,500,000 a year to maintain and operate the forty-six United Hospitals. The average cost per day for ward patients last year was $2.69, against $2.06 per day two years ago, an increase of 30 per cent.

The cost of the ward patients in the forty-six hospitals of the United Hospital Fund is:

HOSPITALS Arranged According to Cost of Ward Patients	Daily Cost Ward Patients	Daily Patients	Census Employees	Percent Beds Used Daily
Above $4 a day—				
Ophthalmic	$6.34	19	16	25
Presbyterian	4.69	217	472	90
Volunteer	4.42	34	55	91
Knickerbocker	4.06	40	55	75
From $3.50 to $3.99—				
Neurological Institute.	3.95	71	104	81
Flower	3.90	180	234	90
New York	3.63	336	438	91
Memorial	3.62	76	103	85
Beth Israel	3.61	108	133	79
Lenox Hill	3.56	243	362	79
From $3 to $3.49—				
Man. Eye, Ear, Throat	3.39	131	192	66
Lebanon	3.16	141	133	71
Lying-In	3.08	225	266	79
Post-Graduate	3.04	313	424	77
Mount Sinai	3.02	384	616	75
From $2.50 to $2.99—				
Skin and Cancer	2.95	64	78	67
Eye and Ear Infirmary	2.92	117	135	67
St. Luke's	2.79	350	466	90
Woman's Hospital	2.79	189	360	75
French	2.75	104	146	92
Roosevelt	2.74	234	375	84
Hospital for Women	2.68	73	70	73
Lincoln	2.63	300	316	83
Deform. Joint Diseases	2.63	56	127	81
Sydenham	2.62	59	90	82
St. Mark's	2.61	84	98	81
Park	2.60	60	48	80
Hahnemann	2.55	101	138	74
From $2 to $2.49—				
Manhattan Maternity	2.43	46	75	76
Knapp Memorial	2.24	37	37	71
Babies' Hospital	2.17	54	68	68
Orthopaedic	2.16	209	204	91
Nursery and Child's	2.15	165	221	61
Ruptured and Crippled	2.13	215	195	83
Jewish Maternity	2.11	92	65	93
Below $2—				
House of Rest	1.99	74	25	98
St. Mary's Free	1.83	102	83	72
Home for Incurables	1.78	299	152	99
Montefiore Home	1.76	679	345	94
Isabella Home	1.63	47	26	71
Sloane	1.60	183	156	68
St. Andrew's Conv'nt	1.53	15	9	46
Misericordia	1.50	112	121	57
House Holy Comforter	1.32	56	23	56

INDUSTRIAL MEDICINE

By NORMAN BARNESBY, M D., Consultant, Letchworth Village, Westchester County and St. Bartholomew's Hospitals, New York City

Industrial medicine is interpreting the productive capacity of the plant in terms of the health of the workers.

Medicine in industry is as much a department of practical utility as any other part of the organization, and strict cost accounting of medical service but serves to emphasize its benefits.

The education of the industrial group in health matters reacts to the good of the community. With a widespread realization of its paramount importance, health will become the objective of intelligent cooperative effort, and increased energy, better mental attitudes, and disseminated knowledge will make it universal.

TWENTY years ago there were few medical directors of the large industries. There were fewer still of the large corporations. There were none who filled the capacity of medical director in its present-day significance. The value of industrial medicine was unknown. Moreover, the organized supervision of the health of employees was a field of science unexplored if not undiscovered. Applicants for jobs were accepted usually without physical examination. The honesty, sobriety, cleanliness of habits,—the health of the applicant, qualities vital to the interest of the employer, had to be determined by the applicant's appearance at the time of the interview. For years we have been confronted with countless articles about "reading faces." It is an art upon which a great deal of responsibility must be placed, and yet it is undependable unless fundamentally supported by reliable investigation of a purely scientific nature.

Physical Examination Essential

Physical examination of applicants is, of course, only a small part of the field of industrial medicine; but its value is apparent. For example, at the present time about 3 per cent of applicants for jobs in the big industries are turned down on account of physical disqualifications. Of those who are accepted much is learned about their habits and mode of life which is of the utmost interest to the medical director. In case of sickness the doctor has on record an account of the physical and mental characteristics of the patient that is of intrinsic value to him in making his diagnosis and in determining the treatment. Physical examination of applicants was one of the first needs for medical advice felt by an employer of factory hands or of any laborers to whom good physical stamina is of paramount necessity in the retention of their jobs.

The development of industrial medicine has been exceptionally rapid. It had to grow with the industries of which it formed a part. Just as there have been the two forces of mechanical engineering and chemistry which have impelled the rushing progress of industry, there have been four main factors which have been the material causes for the rapid development of industrial medicine and have made it keep pace with industry. These four factors are (1) accidents, which occur especially in factories; (2) tuberculosis; (3) the public health campaign carried on by the government and other agencies; and (4) labor difficulties.

In a great many industries, more than 20 per cent of the employees formerly met with an appreciably serious accident each year. The United States Steel Corporation was one of the first industries to realize what this ever-increasing number of accidents and injuries to employees was costing them. Their business is one that presents a certain degree of risk to their employees. First aid hospitals had been established at the outset. As the corporation grew and accidents increased, the hospital system was enlarged—proportionately. "Safety first" campaigns were waged with volumes of literature and numerous rules; and a complete medical supervision over the health of the employees resulted. Of many other industries in which hazardous work necessitated continuous watchfulness against accidents, this same story may be told.

Tuberculosis a Factor

Fifteen years ago tuberculosis was the disease most prevalent in the United States. The tubercle bacillus threatened the efficiency of all business, and at one time the prosperity, if not the life of the country. That little germ might bring about degeneration of society, might sap the vitality of a nation, causing its civilization to decay and its children to deteriorate. Such morbid reports as these were circulated freely. Everyone was alarmed. A cure was found, but the cure

necessitated immediate discovery of the disease, and in this case the exigency of periodical examinations of employees was brought home to the employers of shop girls, office clerks, and other indoor workers in the large cities. Department stores and corporations followed the example of the factories, and here, again, there resulted skillfully organized medical supervision.

The third factor in the development of industrial medicine arose in the public health campaign, in which state governments, city boards of health, and the Federal Government vie with one another in the effort to stamp out disease. As a result we find a general betterment of living conditions, and a marked improvement in working conditions. We find rest rooms and play grounds provided in the large corporations and in factories. Child labor is prohibited. Working hours are limited. Reformation is general and widespread. Such an influence was bound to permeate all large industries. Employers began to see the benefit obtained by industrial medicine in promoting the efficient conduct of their business. That legislatures noted the benefit of industrial medicine to the voting class is evidenced by the fact that Massachusetts has been busy of late putting into effect the provisions of an amendment of the state labor laws enacted in 1918 requiring every employer employing over one hundred persons to provide facilities for the treatment of persons injured or taken ill on the premises and, also, suitable and sanitary installation for heating or warming food to be consumed by the employee.[1]

The fourth, and the most recent cause for the thorough centralization of previously elemental experiment with the medical department of a corporation, which scarcely could have been called industrial medicine, is the difficulty of cooperation between the capital and labor classes. The various employers are attempting to placate labor in some way that will not spell the financial ruin of their companies. The first experimentation in this line took place in Germany before the war in their various plans of insurance. The argument for group insurance is based mainly upon this idea of keeping employees satisfied, in that it provides the cheapest possible way for an employer to give money to his employees. Industrial medicine is health insurance. Slightly different from all other forms of insurance which pay the individual something in compensation for injury he has received or damage done to his property, health insurance endeavors to prevent accidents and sickness by keeping the individual in the best possible physical condition, and by checking at onset any sickness which might develop later into something more serious. For this reason it may be said to be the most potentially valuable attempt to bring about cooperation between capital and labor. It is apparent that labor is not to be convinced by argument of facts that it would be impossible to concede to their demands. The only other way is to keep labor from making these impossible demands; and maintaining a man and his family in good health accomplishes much toward keeping him satisfied. If there is any way to make an employee feel some appreciation for what is done for him, it is to cure him or his wife or child of a disease. More and more are employers beginning to understand this.

1. Am Jour. Pub. Health, October, 1919, p. 807.

Industrial Medicine Defined

The question "Why do employers institute medical departments?" or "What are the benefits to employer and employee of a thoroughly equipped and organized medical department?" will be referred to later. Here we have simply sketched a history of the development of industrial medicine, recalling the four main causes for its rapid development. The question naturally presents itself as to exactly what is industrial medicine in the present significance of the term.

Passively, industrial medicine is the science of medicine in its relation to industry; actively, it includes the many functions of the modern medical department of a large corporation. The physical examination of applicants has already been mentioned. By thorough examination of applicants the doctor is able to discover any existing defects. For instance, in the case of heart disease, an applicant will either be placed in a position which will not be detrimental to his health, or he will not be accepted at all. With the record of a physical examination on file, the doctor has a knowledge that will make him appreciate more fully any ailment a man may display when injury or sickness brings him to the hospital. The function of a medical department is primarily prevention of sickness, not cure; but, of course, the curing of some minor disability can often remove the direct cause of an illness more serious. Every employee of a large corporation with an adequate medical department is urged to come often to the hospital for examination. The efficiency of the medical organization depends not a little upon the desire of employees to keep the doctors informed of their state of health. Often, in the case of a man with some minor defect, a slight change of work, of mode of living, of diet, or of medicine, may increase his capacity to that of the normal man.

Much sickness can be prevented by good advice. Fatuous quacks with thick rimmed spec-

tacles, a shining array of instruments, and a patented supply of pulmo-gastric data, still fawn over the sick bed and apply soothing syrups and soft sentences to a broken leg with the inane blandness of a superlative jackass. And people hearken to these men and pay them for their soothing syrups, so that they can buy some more and give it to the next patient. A medical department issues its advice through the medium of literature in pamphlet form as well as through the treatment of patients. Advice on almost every known disease is thus circulated. Such pamphlets contain information about the eyes, the teeth, blood poisoning, indigestion, strains, or colds, and they warn people against the unctuous syrup-perfumed quacks, and explain the medical science as a whole in a way that make the reader think. To make people think is a great service to mankind.

Medicine Essential to Industry

Today the medical department is a vital part of the machinery of a corporation. In twenty years the population of lower New York during working hours has increased from several hundred thousand to about two million. Mill and factory cities have sprung up everywhere. Society is crowded, especially during working hours. They have had their doctors at home; they must now have them while at work; for it is a well recognized fact that industrial medicine is an efficiency saving device, that it is an institution worth while to employer and employee alike. Moreover, it is apparent that it promotes efficiency. A man who previously would go home with a headache now gets relief from the medical department and works while he is being cured. The employee gets medical attention and often surgical attention, free for himself if not for his wife and child. Disability diminishes, and sickness is prevented. Stricter account is kept of employees, and a man's character, mode of living, and habits are better known to the employer. Just how much worth while it is, from a financial standpoint and in regard to efficiency, is a question that would involve a comparison of the cost of maintaining a thoroughly organized medical department with the cost of the labor lost through sickness or injury previous to the organization of the medical department; and figures on the latter part of this question are obtained with difficulty.

In my own experience no record of employees leaving work on account of sickness was kept until the medical departments were organized. There is no way to tell how much sickness had cost the National City Bank, or the National Bank of Commerce, or the American International Corporation prior to their provision of medical service. Furthermore, inquiry showed that the same thing is true of many other corporations. I finally obtained statistics from a large industry in Worcester, Mass. This firm now has a large hospital and an excellently organized medical department. A comparison of records showed them that medical supervision saved them 19.2 hours per man per month. Assuming an extremely conservative average wage at one hundred dollars a month, this would effect a saving of about ten dollars worth of work a month per man, or $120 a year per man. According to the July, 1919, issue of the *Monthly Labor Review*, in which figures have been compiled from the experience of ninety-nine industrial establishments in the United States, all with a personnel of more than 1,000, the average annual cost of medical and surgical supervision per employee for these ninety-nine establishments was $2.50, or 2.08 per cent of the cost of the labor that would have been lost. In other words, through industrial medicine, it costs a firm with a thousand employees at least, about $2.08 for every one hundred dollars worth of work they would have lost without the institution of a medical department.

Comparison of Costs Difficult

A great many objections can be raised, attempting to show that such percentage would be erroneous in the case of a great many firms; but the figures are so very favorable from the point of view of the employer that no objection or comparison could show that industrial medicine is an extravagance. In such a comparison as this, there are many influences which have been necessarily disregarded. The new era of the world's history has changed and is changing conditions and ideals by making for the betterment of surroundings, shorter working hours, the expansion of all business and the rise of new industries. Quicker transportation from home to office is promoting the growth of the suburbs. The upheaval caused by the war, the reaction of reconstruction, the epidemic of influenza,—these, and many other influences as widely varied would have to be considered statistically in making an absolutely true comparison; and this, of course, would be impossible; but in the figures given, the preponderance of money saved over the cost of medical service is so great that not much argument can be raised to disprove the estimate made.

For the sake of argument, suppose the cost to be $102.08 for every $100 saved. Would not the benefits, which are not to be estimated by dollars or cents or percentages,—benefits such as educa-

tion, cooperation, general improvement of health, increase of efficiency, advance in the science of medicine,—more than balance this $2.08? This last benefit, namely, the advance in the science of medicine, may need explanation. It is the advance due to experimentation, not amateur experimentation which might be harmful, but practical professional experimentation such as the work now being undertaken by one large company today who are inoculating 1,500 employees with a serum to prevent colds. This serum is in no way harmful. It causes no inflammation such as vaccine does, or slight rise in temperature such as results from the inoculation for typhoid fever. The medical department of this company is keeping a record of these 1,500 employees with a parallel record of 1,500 employees not inoculated for the purpose of comparing results. During the epidemic of influenza this same company tried much the same experiment and found that the disease was 50 per cent less prevalent among those who had been inoculated than among those who had not received the serum treatment.

Regarding cooperation, in a study of relations between employer and employee, Grant Hamilton, director general of the Working Conditions Service of the United States Department of Labor, through Dr. William M. Leiserson, makes this report: "In proportion as the employment organization is efficiently operated, and the hiring, training, distribution, and management of employees are properly handled, there will be less need for so-called 'welfare work' to keep employees contented. Personal service work will, however, always be needed. The safety and accident prevention movement is sufficiently developed to require little more than mention here. Sanitary conditions in the factory and protection of the health of employees by industrial physicians and nurses are also plain business measures for decreasing sickness, absences, spoiled work, and for increasing production."

Economy and Safety Assured

From the point of view of the employee, industrial medicine means improvement of health, free care, education, and economy. A man, and especially a woman, feels a certain relief to know that immediate care is available in case of accident. It is a comfort to know that no prolonged illness can eat up their salary; that they will be given free care and the best care. In 1918, out of about 5,500 employees of a large corporation in New York, 5.437 persons made 29,828 visits to the company's doctors. In other words 95 per cent of the personnel made an average of five visits. They received this medical attendance free. In many cases visits for slight injuries or sickness would not have been made if the patient had had to pay for the appointment; and in many other serious cases, the patients would have had to spend some appreciable amount to be cured by their own doctor. The only possible comparison would show that at an average charge of $1.75 per visit, the average savings per employee for medical care would be about $8.75. This means that many employees were cured and retained their positions who previously would have had to resign their positions because of sickness which they could not themselves afford to cure.

Aside from its bearing on the private industry concerned, industrial medicine has a direct relation to the interests and health of the nation. Industrial medicine contributes to the stimulation of production and thus to general welfare. Figures of total daily production by the individual, from day to day and week to week, show unusual uniformity. Recent inferences that laborers are not doing as much as they can, and are working with some sort of idea of quantitative output as being equal to a day's work, in their minds, seems to be justified. From the point of view of industrial medicine each employee is a mechanism, more intricate than any other mechanism because it is human. It is the part of industrial medicine to keep this mechanism in the best working order, to have this machinery run more and more smoothly. Mechanical engineering and chemistry have caused the phenomenal industrial progress of the last two decades, but the human side has not been eliminated. Men and women are more necessary than ever to carry on the work of the industries. Thus industrial medicine can be regarded as another science, necessary to the practical application of engineering and chemistry. Perhaps its present greatest utility is education. Sound education will lessen bad influence. Education which in this case, inherently infers decent surroundings, is the only method yet discovered to change a man's state of mind toward his work, and a change in the state of mind of workers toward their work, is particularly necessary at this time if industries and government are to exist.

Contributes to National Welfare

Another result of industrial medicine, already noticeable, is the betterment of national health. To read about the activities of this and that board of health, this doctor and that medical director, in the fight against disease, may lead one to think that there is little existent contagious disease or few serious defects in the average men on the street. The Department of Health of the City of New York recently examined 1,500 male

and 390 female foods handlers, including waiters, waitresses, cooks, and bakers. They found only 511 men and 52 women without disease or defect, and as many as 2,842 types of disease and defect, which indicates a serious situation, the systematic improvement of which is entirely problematical.

It is not that these waiters and waitresses and workers in general do not desire to be cured, but they cannot afford to be cured by a private physician and they shun the idea of the subsidized hospital or the clinic. There is so much absolutely unregulated, uncontrolled, unorganized, unintelligent, unrecognized, unknown sickness subsidy throughout the country that such a situation as now obtains is the normal result. Workers who have no medical department connected with the concern they work for are driven to the free wards, where they either form such a prejudice against doctors and medical science as a whole that they never return, or they get hospitalized to such an extent that they become hypochondriacs. Moreover, this free medical care in the shape of clinics and almshouses and free wards is bestowed upon workers as the benevolent regard of a philanthropic society, not given to them as what is most justly, or rather unjustly, theirs. This does not mean that our system of sickness subsidies should be abolished nor does it advocate socialization of medical attendance; but certain defects and faults in our present system should be rectified and I mean that industrial medicine should play its part in an early readjustment of the system. Furthermore, there must be an expansion of industrial medicine, an expansion so great that it will materially lessen the number of workers driven by necessity to the free wards. That employers cannot evade this issue by handing out a sickness gratuity is too obvious to require explanation. Moreover, the worker must be held somewhat responsible for his own health and the health of his family, and must pay a share. A system of universal sickness and health insurance must be substituted,—a cooperative system in the organization of which industrial medicine will form a vital part.

Health Boards and Industry

Industrial medicine is closely connected with the state and municipal boards of health. Medical directors and assistant medical directors are frequently called by the mayor or governor to give advice or statistics. Cooperation in the medical line between public and private interest is becoming more and more thorough. It may be said the term "private interest" should not be used in connection with industrial medicine because industrial medicine is perhaps more intimately connected with the public than are the boards of health themselves, and may become more intimately connected with the public,—the working class of the public—than the free wards and the clinics. The Board of Health makes rules to prevent disease; industrial medicine goes further, and cures disease. Industrial nurses visit the sick. Industrial doctors cure the sick, and take into account those with slight ailments. Workers are not driven to them by dire necessity. It follows that, regardless of the material advantages, industrial medicine presents to employers and employees alike advantages which assure its rapid expansion, and it is directly and indirectly doing the nation a great service. Its influence reaches millions of people. It teaches them to think. It educates them. It comforts them. It insures better health, better hiring and working conditions. It helps to stamp out epidemics. It stimulates efficiency and production. It gains experience for the science of medicine. It organizes and centralizes the cure of the sick and the prevention of disease. It is a link between capital and labor. The solution of the most acute problems of these times is left to it. It is a new science, a new industry in itself. That it will expand and will become more and more efficiently organized is certain; but its problems are many, and it must attain the highest pitch of efficiency and cooperation with other medical institutions to solve them.

FORMULATION OF NEW SAFETY CODES

The formulation of codes on safety in paper and pulp manufacture and safety in blast furnaces operation was tentatively assigned to the National Safety Council by the National Safety Code Committee at a recent meeting held in Washington, D. C.

The Committee—which consists of representatives of the National Safety Council, the Bureau of Standards, the Safety Institute of America, the American Society of Mechanical Engineers, the National Electric Light Association, the stock and mutual insurance interests, underwriters' laboratories, and the state industrial commissions of New York, New Jersey, Pennsylvania, Ohio, Wisconsin, and California—also suggested that the National Safety Council undertake the formulation of safety codes on building construction and on power presses. This will be done by the Council through its construction and engineering sections and with the assistance of other interested organizations.

The National Safety Council has prepared for its own membership safe practices pamphlets on paper and pulp manufacture, blast furnace, and power presses and it is probable that the standards formulated for distribution to industry at large through the National Safety Committee will be based on the safe practices pamphlets already issued by the National Safety Council.

The mining section of the Council was asked to take up with the Bureau of Mines and the mining societies the matter of formulating mining safety standards in addition to those formulated by the Bureau of Mines.

WAR CONTRIBUTIONS TO INDUSTRIAL SURGERY*

By STANLEY R. MAXEINER, M.D., Minneapolis, Minn.

The physician-soldier has learned his lesson and, like the true scientist he is, has measured the results of his war work and seeks to apply them to civil problems.

Whatever has contributed to the safe and expeditious handling of war cripples and the earliest and most complete possible restoration to service should become a part of the equipment of the industrial surgeon.

For the true value of a method is not its application in a limited number of cases, but the successful outcome it achieves as an accepted procedure, and the chief war contribution to surgery will be in the selection of methods proved by the acid test of wide observation of end results.

DURING the past ten years there has been developing in the medical profession a new group of specialists—the industrial physicians and surgeons. Today industrial medicine has reached the highest point yet attained, and is gradually subdividing itself into its natural branches. It is perhaps only natural that this branch of the profession should reach its greatest height at this time, for this is truly an industrial era, a day of organization, and of group thought and effort. Its rapid development is due to the demands of organization, both of labor and capital, rather than to any conscious effort on the part of our profession. The Workmen's Compensation acts and the proposed new laws on health insurance are expressions of concerted effort on the part of others to secure better health measures. It is time for the medical profession, through better organization and greater effort, to concern themselves with these measures relating to hygiene, sanitation, prevention of disease, precaution against accidents, matters of over-work, and the problems of fatigue; for surely with their knowledge and familiarity of the subject, physicians are best capable of judging and suggesting what policy to pursue. Geier in Modern Medicine for November calls attention to the fact that on the National Industrial Conference representing many branches of industry, several professions, and numerous labor groups, the president failed to appoint a single physician. This new branch of medicine may help to bring about a closer bond between the physician and the employed, and between the physician and the employer. He may even be the means of bringing the two groups together.

In this paper we shall pass over the lessons gained from the war which may apply to the industrial physician and limit the discussion to those of particular interest to the industrial surgeon. The conclusions are based on a review of the literature and the author's personal experience and observation while serving for twenty-two months with the British Army as Battalion Medical Officer, Medical Officer attached to Field Ambulance, surgeon at a war hospital in London, and as radiologist and surgeon at a Casualty Clearing Station.

The Procedure in Shock

A large number of wounded soldiers suffered this complication because they were often extremely fatigued, under-fed, deprived of water, and frequently suffered severely from exposure to cold at the time of injury. Every effort was made at every relay from the front line to the advanced hospital to combat this condition. In the dressing stations the soldier in shock was placed in blankets on a stretcher suspended over oil stoves and, while his wounds were being dressed and splints carefully applied, he was given hot drinks or perhaps hypodermic salines. At the casualty clearing station it was found very early that if these cases were operated upon at once the mortality was very high. During the necessary delay he was put in a resuscitation ward and further treatment instituted. Absolute rest was imposed and more heat applied. Fluids were given by mouth, per rectum, hypodermically, or into a vein. It was remarkable how quickly these cases responded to transfusion of blood whether there had been hemorrhage or not. The patient was grouped at once and a proper donor, who was always on hand, furnished 500 to 1,000 cc. of blood.

We used many methods of transfusion, but eventually adopted in our hospital the following technic which is described because of its simplicity and efficiency: 500 to 1,000 cc. graduate glass rod; large needle with very clean lumen; 2 per cent sodium citrate; 500 to 1,000 cc. of sterile salt solution; funnel, rubber tube; and second needle. The large, clean needle, pointed distally, is introduced into a vein in the arm of the donor and the desired amount of blood al-

*Read before the Hennepin County Medical Society, Minneapolis, Minn., January 14, 1920.

lowed to run into the graduate containing a requisite quantity of sodium citrate solution to make a .2 per cent solution with the blood. Both are steadily mixed with the glass rod. The citrated blood is then introduced by means of the funnel, tube, and second needle into a vein of the patient. The blood may be preceded or succeeded, if desired, by additional salt solution, intravenously. This method is so simple that we have of late in civil practice performed transfusions in the patient's bed as was our custom in France. At the front we often had citrated blood in sterile flasks kept on hand for use in an emergency. A most important factor regarding transfusions is not to wait too long, but to act before the patient is *in extremis*. Gum Acacia solution, so often recommended as an improvement over plain salt solution, was in our experience, no better; on the contrary, three fatalities occurring in less than an hour after infusions we felt were directly attributable to the use of this solution.

The Inter-Allied Surgical Congress expressed the opinion that the best treatment for shock is rest, warmth, morphin for pain, fluids, and blood transfusion.

The Treatment of Wounds

Early in the war a source of great wastage of man power was found to be due to the improper care of the slightly wounded. Numerous cases that should have been returned to duty in a few days developed complications which caused a protracted convalescence or even complete permanent disability. Similar cases are only too numerous in industrial accidents.

The first principle of the treatment of wounds founded on the technic used in war surgery is based on the fact that early wounds are contaminated but not infected. When a *débridement* is done, all contaminated and devitalized tissues are excised; the devitalization being determined by the reaction of the tissue to a mechanical stimulus and whether or not it bleeds. Foreign bodies are removed and from 80 to 90 per cent of all wounds so treated may be closed primarily. If it is not considered advisable to do a primary suture, the wound may be packed widely open with gauze and in seventy-two hours a delayed primary suture done. This was usually the time also of the first dressing. Some surgeons chose to institute irrigations every two hours with Dakin's solution during the three-day interval in place of the dry gauze pack. It is to be noted that the more experienced the surgeon, the more thorough and complete was the *débridement*, and the more successful were the primary sutures. By this form of treatment many cases of compound fractures were converted at once into simple fractures, abdomens were less often drained, and wounds into joints were invariably closed primarily. Cuthbert Wallace reports 625 primary sutures with 444 successes; 69 had some union; 69 were failures. In one series of 100 compound fractures, 75 per cent were closed primarily with success. Approximately 50 per cent of all wounded were treated by primary suture.

When wounds became septic, Dakin treatment was usually instituted at once. In our hospital in place of the glass manifold tube connecting the many rubber tubes, it was found to be an advantage to leave the ends of the tubes protruding from the first dressing and to irrigate each tube individually. This procedure, though somewhat more time-consuming, insured that each tube was functioning, and that all the solution was not running through one tube. Another feature essential to success in the Dakin treatment is the necessity of standardized solutions. Many of these wounds with proper treatment soon had bacterial counts sufficiently low and presented a clinical appearance suitable to permit closure by secondary suture or by skin grafting. When grafting skin from one individual to another, it is now generally accepted that they should be grouped the same as for blood transfusion.

The Use of Antitetanic Serum

In the British Army it was ordered that antitetanic serum should be used in all cases in which the skin surface was broken and in cases of Trench feet. This may seem to be over-doing it a bit in civil surgery, but we do not use it often enough and it is our opinion that the courts will eventually hold that the man who failed to use antitetanic serum as a prophylactic measure in a case of tetanus is both neglectful and liable. Antitetanic serum was given as an initial dose of 1,500 units or in three doses of 500 units each at weekly intervals. The latter method seemed to render better protection against the so-called case of delayed tetanus.

The great advance made in this particular subject should be of special interest to every industrial surgeon. Considering every compound fracture a contaminated case, a thorough mechanical cleansing, that is, *débridement* is indicated. Depending on the extent of the injury, the wound may be closed by primary or by delayed primary suture and the compound fracture converted into a simple one. If this procedure meets with success, the functional result is thereby greatly improved, period of disability often cut in two, and the patient saved many hardships.

Fracture of the femur was one of the greatest problems of the war and deserves special attention. In 1914 and 1915 most of the fractures of this type were transported with the long Liston splint. All arrived at the casualty clearing station in deep shock and the mortality was very high indeed, ranging from 40 to 50 per cent. Later, in 1916-1917, the Thomas outfit was generally adopted and applied by the Regimental Medical Officer or trained orderlies and stretcher bearers on the field. These cases then arrived in much better condition, due principally to the improved methods of transportation, so that the mortality rate was reduced in 1918 in the British Army to about 30 per cent.

All emergency ambulances should be equipped with the Thomas outfit and attendants should be thoroughly instructed in its application. We would also strongly recommend that the outfit be placed on trains, in dispensaries connected with large industries so that surgeons who are called upon to treat such injuries have access to it, and that all cases to be transported be so dressed. This would apply very well to the country practitioner who wishes to send such a case to the city for treatment.

Treatment by Extension

Treatment by extension in the case of fracture of the lower extremity was quite generally accepted by all of our Allies. The use of the calipers and Stenman pin is a great advance in hospital treatment when extension is desired, while the Sinclair glue with gauze is a great improvement over the old adhesive strapping.

Formula

Glue	49
Thymol	1
Cal. Chlor.	1
Aqua	50

During the March retreat near Albert, the author personally evacuated 248 wounded cases and put up eight fractured femurs with the Thomas outfit in twenty-four hours.

Massage and early passive motion are essential to an early restoration of function. Splints adjusted and constructed to permit the passive motion of joints contiguous to a fracture from the first day have been devised and successfully used by Blake. Many cases thus treated have a complete range of motion of the limb when the fracture is healed. This should be of value in the conservation of man power by greatly shortening the period of disability in fracture cases.

The x-ray is as indispensable in this group of cases as in the removal of foreign bodies, both from the standpoint of diagnosis and treatment. The portable x-ray machine which obviated the necessity of moving patients from their beds was of great value in the treatment of fractures.

During almost ten months service as radiologist at a casualty clearing station I found that a surgeon did not want to know how many centimeters a foreign body was below the surface, for measurements convey little to his mind when he is under the stress of an operation. He did want marks on the skin with the part in the normal position of rest in which all localizations were made. An "X" was made above and below the foreign body with indelible ink, and the depth recorded laterally on the part by a straight line through a circle. The approximate size, together with its relation to important structures, was also reported; *i.e.*, whether it lay in front of or behind the femur or interosseous membrane, or in the bone, in the abdominal wall, or whether it penetrated into or through the abdominal cavity; whether it had lodged in the chest wall or had penetrated the lung. In the chest and abdomen the course of the foreign body, determined by the wound of entrance and its present location or wound of exit, could be traced very successfully on anatomical charts of life size.

The Wounds of Joints

The treatment of wounds of joints was almost revolutionized by war practice after a thorough mechanical cleansing of the wound and of the joint by *débridement*, the joint being often aspirated first to determine whether or not it had been penetrated, the capsule was invariably sutured without drainage and the other soft tissues closed by primary or delayed primary suture. By this method the usual stiff joint of pre-war surgery was avoided. The subsequent treatment was passive motion, started at once, no splint being applied. Frequent subsequent aspiration may be necessary.

The knee joint was the one most frequently injured. In the case of the knee, if the joint became septic following a penetrating wound, free lateral incisions were made early, irrigation with Dakin's solution and passive and active motion continued. The movement of the joint promotes drainage and literally squirts the pus out of the joint recesses. Drainage or Dakin tubes into the joint cavity are unnecessary and harmful. Secondary suture may be possible later.

In cases requiring surgery of the abdomen there have been few changes. The case received early is usually best operated on at once, but if received late, many cases do better after rest, stimulation, the application of heat, and blood transfusion. The use of one row of sutures in an intestinal

resection saved much time and, so far as the author was able to observe, proved quite ample. The ordinary base ball stitch was commonly used. Surgery of the thorax under war conditions developed many improvements both in technic and results. The long incision parallel to a rib border with wide retraction of the ribs has usually proved more satisfactory than the large flaps that sectioned the ribs. Because of its vascularity and oxygenization the lung tissue is very resistant to infection. Gaping wounds of the chest, usually called sucking wounds, cause profound shock and should be closed at once either by suture or by strapping. Hemothorax, following lung injury, requires frequent aspiration. A rapid, sudden increase of fluid in a hemothorax usually means the advent of infection. Empyema has been found to respond in many cases to irrigation with Dakin's solution by a special technic, and in many cases the routine rib resection, with its numerous objectionable features, may be avoided.

The lessons gained in the surgery of the nervous system are numerous, but one is of special note, namely that sutures of nerves following a *débridement* with primary or delayed primary suture of the wound affords a much greater prospect for a functional result than a suture done several months later when there is excessive fibrous tissue between the ends of the nerve with advanced degeneration of both nerve and muscle. Plastic and orthopedic surgery constitute a separate field.

Burns are now treated successfully and with increased comfort to the patient by paraffin applications. The pedunculated whole-skin flaps prevent excessive scar formation and give a tougher surface with better functional results than the Reverdin or Thiersch grafts.

Conclusions Regarding Anesthetics

The Inter-Allied Surgical Congress held that the anesthetic of choice is nitrous oxid-oxygen combined with local anesthesia. Surgeon General Bowlby reports the brilliant work of Captain Taylor and his anesthetist, Captain Marshall, who by this method reduced their mortality from 50 per cent in 1917 to 29 per cent in 1918 in series of 100 consecutive gunshot wounds of the abdomen. Colonel Cabbott performed 90 amputations of the thigh under ether and, later, 90 under spinal anesthesia with a reduction in the latter series of mortality of 50 per cent, while Captains Taylor and Marshall reduced their mortality for this operation more than 200 per cent with gas-oxygen and local anesthesia. Warm ether is also reported in the British statistics to be followed by fewer pulmonary complications than when given by the open method. Bowlby recommends that ether always be administered warm.

Local anesthesia alone was employed very little in the British army and, as a result, they were not so skilled in its use, but toward the close of 1918 most trephining operations were done under local anesthesia, as recommended by Cushing, and many operations on the chest were being done with satisfaction. Repeatedly, I saw ether or chloroform given to remove a foreign body that might more safely have been done with novocain.

Great schools and shops are now being operated by the Government to re-educate the soldier incapacitated for his old position. This restores him to society, a self-supporting, self-respecting citizen, dependent on no one. The problem of the industrial cripple is not only a local issue but a national one and the work of rehabilitation should be kept up in the future and made to apply to the man rendered unfit by an industrial accident. He will then no longer become a cast-off, but by re-education and training he may continue to be self-supporting.

Surgeons caring for industrial accidents should be prepared to treat fracture and joint injury cases with the same apparatus and methods used in the army in the process of re-education. Doubtless, when the present number of disabled soldiers has been cared for, attendants trained in the army technic and with large practical experience will be available for positions in institutions where such cases are treated.

Summary and Conclusions

(1) The Inter-Allied Surgical Congress has outlined definitely the most successful treatment for shock.

(2) Blood transfusions prepared wounded soldiers for extensive surgical operations and saved thousands of lives. Every hospital should have a pathologist or technician available for grouping patients and donors, already grouped should always be accessible from among its employees. Blood should be transfused before, during, or after operations on patients suffering from severe shock.

(3) More attention and better care of the slightly injured are indicated.

(4) *Débridement* should be performed on contaminated wounds of industry the same as on war wounds. Primary, delayed primary, or secondary suture should be practised extensively in an attempt to shorten the period of disability in industrial injuries.

(5) Anti-tetanic serum should be used in all industrial accident cases with abrasions of the skin.

(6) Conversion should be made where possible, of compound fractures into simple fractures, following a *débridement*, the cases usually calling for delayed primary suture. Earlier passive motion and massage of contiguous joints in all fractures is advisable. General adoption of the Thomas outfit for the transportation of cases with fractures of the extremities is urged.

(7) The radiologist should indicate more careful localization of foreign bodies with indelible marks upon the skin before open operations for their removal.

(8) Routine closure of wounds of joints after thorough mechanical cleansing should be practised.

(9) Early incisions are called for in septic joints in conjunction with Dakin irrigations and passive motion.

(10) Ether and chloroform should be displaced by the safer and better methods of anociassociation or local anesthesia. Cushing advocated local anesthesia for all craniotomies; it is advocated by others for all operations on the chest, and it certainly is called for in almost all minor operations.

(11) The employment of trained attendants for late treatment of cases with functional results below normal is recommended and the establishment of schools for the re-education of the industrial cripple.

(12) The war has taught many lessons and it would seem that their greatest field for usefulness is in industrial surgery, in which field they apply not only to the specialist but to every general practitioner who is occasionally called upon to treat such cases.

WELFARE WORK IN A JAPANESE ELECTRIC PLANT

By GEORGE M. PRICE, Director, Joint Board of Sanitary Control, New York City

THE presence of representatives of Japanese employers' and workers' organizations at the recent International Industrial Conference at Washington has disclosed some very interesting facts as to industrial conditions in Japan. During the last four or five years Japan has made giant strides in industrial progress with a large increase of industrial establishments and a correspondingly large transfer of agricultural workers to industrial fields.

Need for Welfare Work

Among the better class of employers there seems to be an honest desire to improve factory conditions which seem to have been deplorable until now. Japan, like other countries, has not escaped industrial unrest. In a private letter, received last fall, my correspondent writes as follows: "We have here in Japan many strikes, the result of unfair treatment by employers. The newspapers are full of discussions on industrial conditions and on the need for better treatment of factory workers. For four days, July 31 to August 3, 1919, the important newspapers in Tokyo were discontinued owing to the strike of the printing workers."

It is interesting to note that there is a demand on the part of many enlightened employers for better instruction on factory sanitation. This is evidenced by the translation of my book "The Modern Factory" into Japanese. Mr. Seishin Otsuka, who is the head of the Welfare Work in the Tokyo Electric Company, Ltd., writes me that my book was "largely responsible for the improvement of factory sanitation in a number of plants." Mr. Otsuka has sent me a number of photographs of sanitary and welfare features of the Tokyo Electric Company works, the reproduction of which would probably be of interest to the readers of Modern Medicine. These photographs show the wearing of respirators by the workers, some advanced ventilating apparatus, medical examination of workers, and other features of modern care of workers.

Factory Acts Inadequate

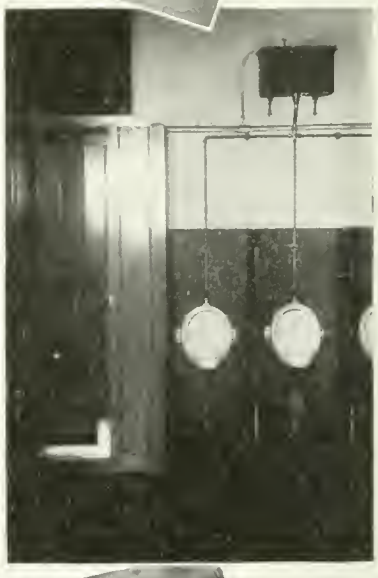
The delegation to the recent international conference included Mr. I. Kamada, president of the Keio University.

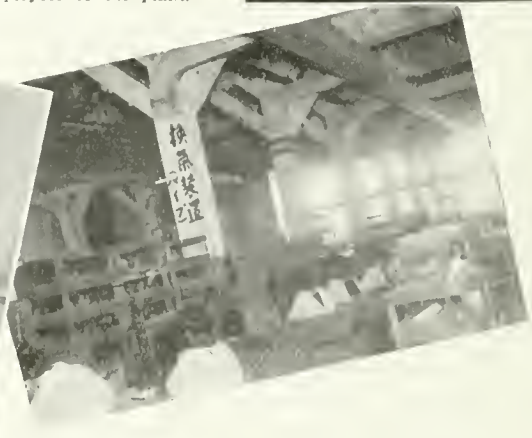
The Japanese Factory Acts are too meager and too inadequate for the protection of workers. The larger companies have introduced certain beneficial measures for the welfare of their operatives. These make provision for recreation, recuperation, and housing of their workers. There are likewise provisions for education of children, for the protection of mothers and children, and for the protection of families of employees when the head of the family is absent on military service. One company states that it gives a special holiday on the occasion of the marriage of an employee without deduction of the wages or bonus. Another company states that employees and operatives may at any time address complaints or petitions to the manager. Another company established a loan office and a domestic inquiry and

consultation office where operatives are invited to consult freely about their troubles. This company likewise appointed a committee on punishment from its own employees and operatives, which committee has to deal with the punishment for violations of the regulations of the company. Dormitories, cottages, restaurants, lunch-rooms, etc., are also provided by a number of employers.

The following is a characteristic statement by one of the companies: "In Japan, where circum-

Respirators are provided for protection against fumes or abrasive dusts. This picture shows a worker so protected. The writing in the picture describes the use of respirators by employees of the plant.





The Tokyo Electric Light Company, Ltd., requires preliminary physical examination of employees. Weight, height, heart capacity, and other matters pertaining to general physical fitness are made a matter of record. The Company provides for emergencies requiring beds, nursing, and medical care. That the space requirements are apparently not those of Occidental types may be observed in the upper, right-hand illustration. The Japanese factories have instituted up-to-date safety measures against fires. An important part of this program is the regular fire drill, which is shown in the middle, left-hand picture. All plumbing and other sanitary provisions are of the most approved type. The firemen's uniforms, shown in the lower, left-hand picture, do not bear much resemblance to those employed in other countries. This photograph shows drilled men ready for action. The Company has provided a modern system of ventilation for the benefit of its workers.

stances are different from those in the West, companies are at certain seasons obliged to have more hands than at others. The spare hands are allowed to take rests by turns and in one case received 70 per cent of their wages while off work." Some companies have established industrial schools for operatives, educational institutes, schools for girls, and memorial funds.

It would be interesting to know how far the welfare work of Japanese employers has permeated the industrial establishments in the country, and the attitude of the workers themselves towards the welfare work of the employers.

DENTAL DIVISION OF THE METROPOLITAN LIFE INSURANCE COMPANY

By T. P. HYATT, D.D.S., Director, New York

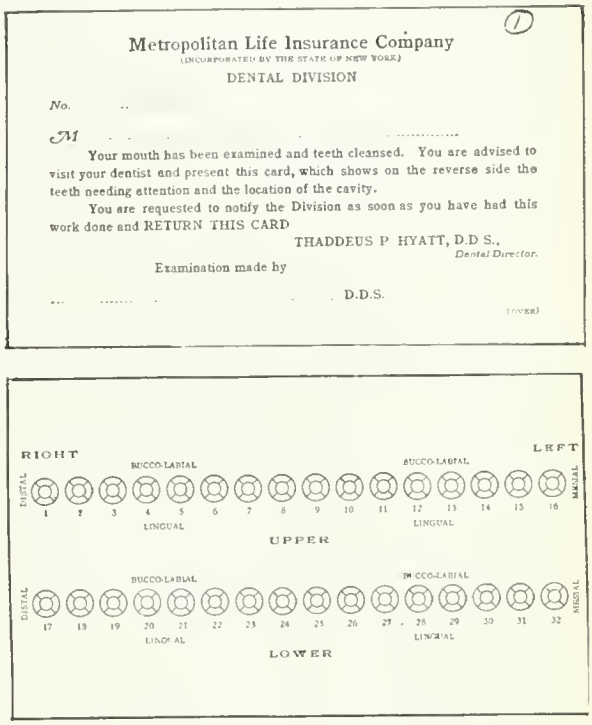
The Dental Clinic of the Metropolitan Life Insurance Company was established in July, 1915. There are seven chairs, each fully equipped. There is one dental director, one assistant director, one dentist, five dental hygienists, one radiographer, and eight women assistants. The work is confined to prophylactic treatments, x-ray examinations, first aid treatments, and careful examinations in regard to the condition of the mouth. At the time the examination is made slips (Figs. 1 and 2) are provided which show the teeth that need attention and the location of the cavity. Employees are given one of these slips, and are advised to visit their own dentists, to have the necessary work done.

Until March, 1919, the attendance on the Clinic was voluntary. The benefits obtained by those who systematically came to the dental clinic were so obvious that the following ruling of the company was made in April, 1919:

"*Dental Examination Now a Requirement*: The services rendered by the Dental Division since its establishment in 1915 have been so curative of impaired health conditions and so permanently helpful to the employees who have taken advantage of the opportunities offered, that henceforth every Home Office employee will be required to undergo examination and cleansing of the teeth in the Home Office Dental Division twice a year. If the service of the family dentist is desired rather than that of the Home Office dentists, such examinations and cleansings by him will be accepted, but they must be procured without expense to the company, and the employee must furnish a satisfactory certificate from him that the required work has been done."

That regular and frequent visits to the dentist for prophylactic treatments, followed by later home care of the teeth is beneficial is shown by figures secured in the clinic.

The employees using the service of the Dental Division have for the purposes of this study been divided into four classes: (1) those who have attended the clinic continuously since 1915; (2) those who have attended continuously since 1916; (3) those who have attended continuously since 1917; and (4) those who have attended continuously since 1918. By our system of recording, the condition of the mouth with respect to cleanliness is graded as "Yes," "No," or "Fair." As this grading is done by six different persons, the uniformity in actual practice was tested by having a single patient examined successively by the six different operators. The fact that each of them, without knowing the object of the test, placed this patient in the same classification would indicate that they held the same ideas as to standards of mouth cleanliness.



Metropolitan Life Insurance Company
(INCORPORATED BY THE STATE OF NEW YORK)
DENTAL DIVISION

No. ..

M . . . . . .

Your mouth has been examined and teeth cleansed. You are advised to visit your dentist and present this card, which shows on the reverse side the teeth needing attention and the location of the cavity.

You are requested to notify the Division as soon as you have had this work done and RETURN THIS CARD

THADDEUS P HYATT, D.D S.,
Dental Director.

Examination made by . . . . . D.D.S.

(OVER)

RIGHT LEFT

BUCCO-LABIAL BUCCO-LABIAL

DISTAL MESIAL

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

LINGUAL LINGUAL

UPPER

BUCCO-LABIAL BUCCO-LABIAL

DISTAL MESIAL

17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

LINGUAL LINGUAL

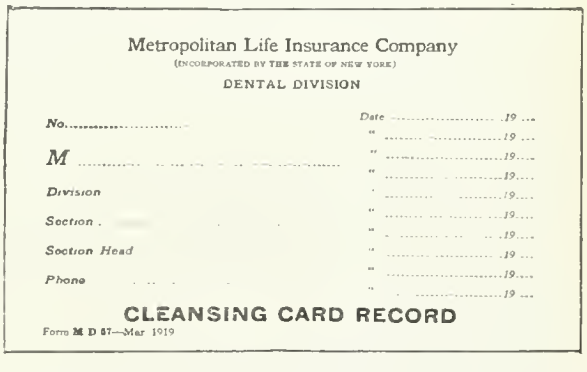
LOWER

Dental division record card with recommendations, and reverse side which gives definite localization of cavities needing attention.

Those employees who have been in attendance at the dental clinic since it was first opened, have shown marked improvement in mouth condition, as indicated below:

	Percentages		
	Yes	No	Fair
Class 1 (1915)	27	25	48
Class 2 (1916)	25	27	48
Class 3 (1917)	18	29	53
Class 4 (1918)	10	50	40

From this tabulation it is to be noted that Class 1, the longest in the service, shows the highest percentage of



Metropolitan Life Insurance Company
(INCORPORATED BY THE STATE OF NEW YORK)
DENTAL DIVISION

No. . . . . Date . . . . . 19 . . .

M . . . . . " . . . . . 19 . . .

Division " . . . . . 19 . . .

Section " . . . . . 19 . . .

Section Head " . . . . . 19 . . .

Phone " . . . . . 19 . . .

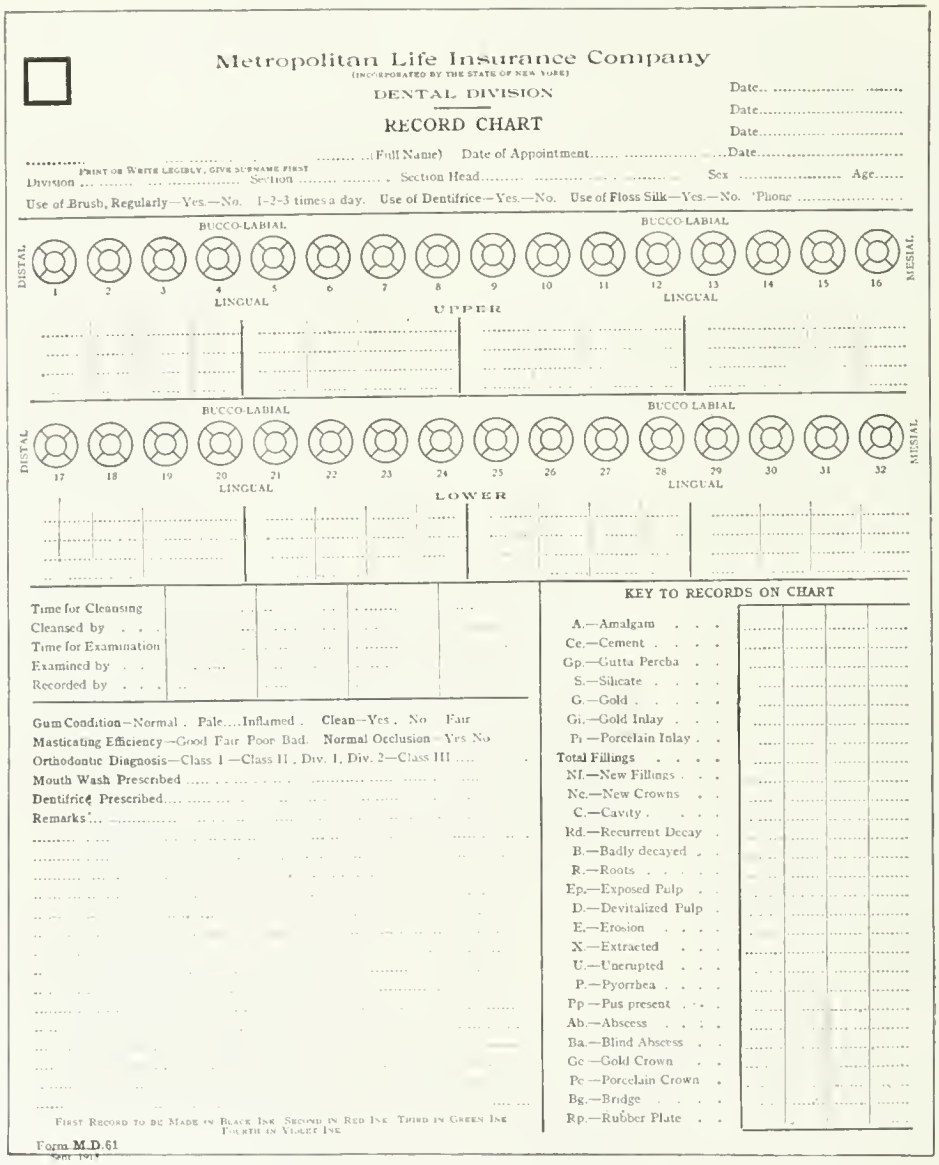
CLEANSING CARD RECORD

Form M D 87—Mar 1919

Records on forms identifying the individual and giving dates when examinations are made.

clean mouths and the lowest of those considered as not clean; Class 4, the shortest time under treatment, has the highest number of unclean mouths; and Classes 2 and 3 show a gradual tendency to grade higher in the percentage of hygienic mouths.

A further study of Class 4 shows that of those who made their first visit to the dental clinic in 1918, 10 per cent are credited with clean mouths, 57 per cent with unclean mouths, and 33 per cent were "fair"; while of those who made their second visit in 1918, 14 per cent were in the highest class, 53 per cent were "fair"; and only 33 per cent are charged with unclean mouths, a gain directly attributable to the educational and corrective work of the dental clinic of 4 per cent in the "clean" class, 20 per cent in the "fair" class, and a reduction of 24 per cent in those rated as "unclean."



Metropolitan Life Insurance Company
(INCORPORATED BY THE STATE OF NEW YORK)
DENTAL DIVISION
RECORD CHART

Date..
Date..
Date..
Date..

..(Full Name) Date of Appointment.....
PRINT OR WRITE LEGIBLY, GIVE SURNAME FIRST
Division ... Section ..... Section Head..... Sex ..... Age.....
Use of Brush, Regularly—Yes.—No. 1-2-3 times a day. Use of Dentifrice—Yes.—No. Use of Floss Silk—Yes.—No. 'Phone

BUCCO-LABIAL BUCCO-LABIAL
DISTAL 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 MESIAL
LINGUAL UPPER LINGUAL
BUCCO-LABIAL BUCCO-LABIAL
DISTAL 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 MESIAL
LINGUAL LOWER LINGUAL

Time for Cleansing
Cleansed by
Time for Examination
Examined by
Recorded by

Gum Condition—Normal . Pale....Inflamed . Clean—Yes . No Fair
Masticating Efficiency—Good Fair Poor Bad. Normal Occlusion—Yes No
Orthodontic Diagnosis—Class I—Class II . Div. 1. Div. 2—Class III ....
Mouth Wash Prescribed
Dentifrice Prescribed....
Remarks'...

KEY TO RECORDS ON CHART

A.—Amalgam
Ce.—Cement
Gp.—Gutta Percha
S.—Silicate
G.—Gold
Gi.—Gold Inlay
Pi.—Porcelain Inlay
Total Fillings
Nf.—New Fillings
Nc.—New Crowns
C.—Cavity
Rd.—Recurrent Decay
B.—Badly decayed
R.—Roots
Ep.—Exposed Pulp
D.—Devitalized Pulp
E.—Erosion
X.—Extracted
U.—Unerupted
P.—Pyorrhea
Pp.—Pus present
Ab.—Abscess
Ba.—Blind Abscess
Gc.—Gold Crown
Pc.—Porcelain Crown
Bg.—Bridge
Rp.—Rubber Plate

FIRST RECORD TO BE MADE IN BLACK INK SECOND IN RED INK THIRD IN GREEN INK FOURTH IN VIOLET INK
Form M.D.61
Statistical data are compiled on forms such as this, the reverse side affording information which may lead to conclusions as to the relationship of mouth conditions to general systemic disease.

Conditions of Mouth Cleanliness

Other interesting figures secured through our statistical examination show that the occlusal surfaces of the teeth are the more prone to decay. After the twenty-fifth year, the number of cavities appearing upon these surfaces gradually diminish. On the other hand, cavities appearing upon the interproximal surfaces of the teeth increase year by year as the patient grows older. This brings out the importance of using floss silk in between the teeth after the twenty-fifth year, and that up until this time it is not essential for the patient to use floss silk.

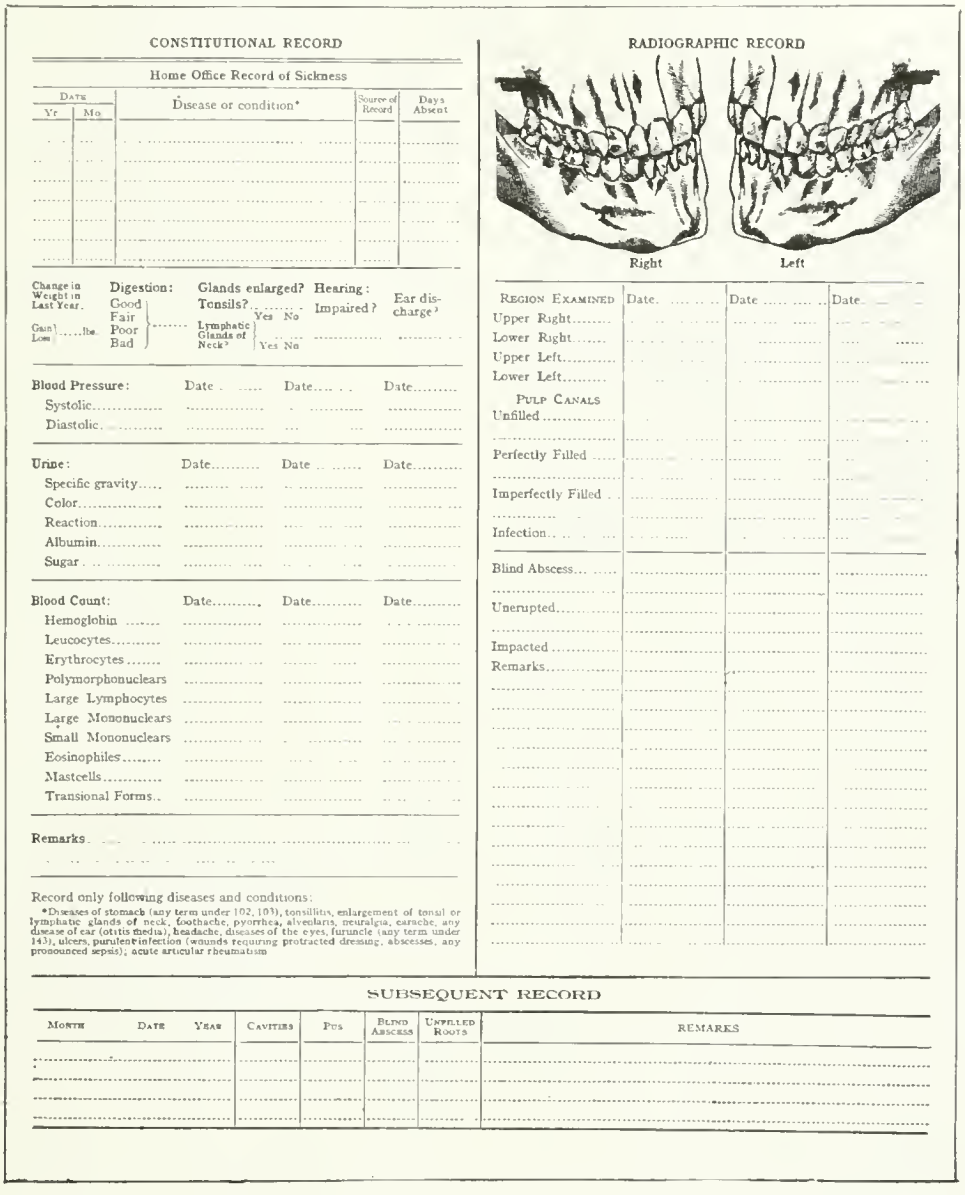
Every patient is given a copy of a pamphlet upon "Home Care of the Mouth," and also a bottle of lime water with instructions as to its use. It is interesting to find that after one year's use of the lime water, and the more careful attention given at home, that of 850 persons only 53 failed to show improvement of the mouth condition. A large number of those that were recorded as not having clean mouths were found to have improved to either fairly clean or perfectly clean, and the same was found to hold true in regard to those recorded as fairly clean. They were changed to perfectly clean.

It is much easier to bring patients with unclean mouths into the class of fairly clean mouths than it is to bring them from the fairly clean to the perfectly clean class.

In view of the fact that it is impossible to detect infection surrounding root ends, we have always insisted upon making radiograph pictures of every known pulpless tooth

and of all teeth having crowns or bridges of any kind. A statistical examination was made by the statistical department of the company of 2,000 cases, divided into two classes, 1,000 in each, one class being persons who as far as examination showed, did not have any pulpless teeth. The other class were known to have pulpless teeth, of which radiograph examinations had been made. While this number is not sufficiently large to justify dogmatic conclusions as to the ratio of increase of systemic ailments among those suffering from dental infection, it is

Inasmuch as the 1,000 who were not suspected of having pulpless teeth had not been radiographed, it was deemed advisable to take out, haphazard, one hundred of these charts, and make a more careful and detailed dental examination. Forty per cent were found either to have impacted teeth that were unsuspected, or teeth, the pulps of which had died under fillings and, though radiographically there were clear indications of infection at the root end, the teeth were not sufficiently changed in color in the crowned portion to attract serious attention in making the



CONSTITUTIONAL RECORD

Home Office Record of Sickness

Date Yr.	Date Mo.	Disease or condition*	Source of Record	Days Absent

Change in Weight in Last Year. Gain ... lbs. Loss ... lbs.

Digestion: Good / Fair / Poor / Bad

Glands enlarged? Tonsils? Yes No

Lymphatic Glands of Neck? Yes No

Hearing: Impaired?

Ear discharge?

	Date	Date	Date
Blood Pressure:			
Systolic			
Diastolic			
Urine:			
Specific gravity			
Color			
Reaction			
Albumin			
Sugar			
Blood Count:			
Hemoglobin			
Leucocytes			
Erythrocytes			
Polymorphonuclears			
Large Lymphocytes			
Large Mononuclears			
Small Mononuclears			
Eosinophiles			
Mastcells			
Transional Forms			

Remarks

Record only following diseases and conditions:

*Diseases of stomach (any term under 102, 103), tonsilitis, enlargement of tonsil or lymphatic glands of neck, toothache, pyorrhea, alveolaris, neuralgia, earache, any disease of ear (otitis media), headache, diseases of the eyes, furuncle (any term under 143), ulcers, purulent infection (wounds requiring protracted dressing, abscesses, any pronounced sepsis), acute articular rheumatism

RADIOGRAPHIC RECORD

Right Left

Region Examined	Date	Date	Date
Upper Right			
Lower Right			
Upper Left			
Lower Left			
Pulp Canals			
Unfilled			
Perfectly Filled			
Imperfectly Filled			
Infection			
Blind Abscess			
Unerupted			
Impacted			
Remarks			

SUBSEQUENT RECORD

Month	Date	Year	Cavities	Pus	Blind Abscess	Unfilled Roots	Remarks

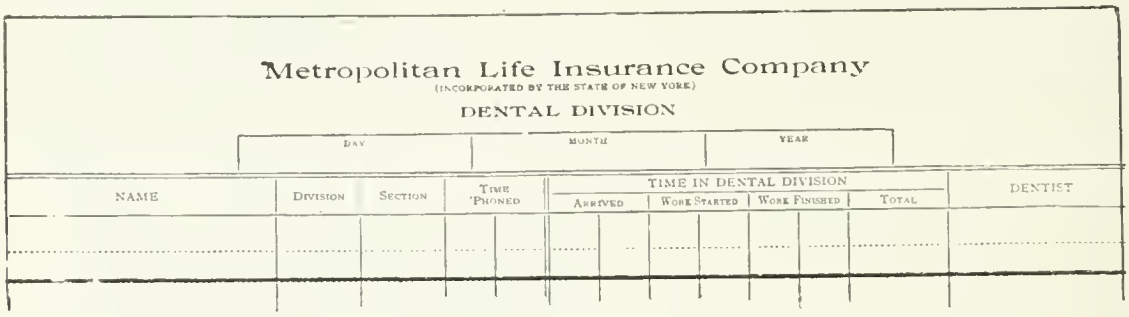
The constitutional record shown in this chart is on the reverse side of the one on page 238. The development of physical disorders may furnish the first clew to an insanitary condition of the teeth.

sufficiently high to warrant the belief that great attention must be given to dental lesion, when known to be present in those patients suffering from systemic disturbance. It was found, among those patients having pulpless teeth, that certain ailments were increased by a very large percentage. Neuralgia and neuritis were increased 118 per cent; headache was increased 68 per cent; nervous troubles, 164 per cent; colds and nasal fossa troubles were increased 19 per cent; furuncles increased 87 per cent; abscesses and skin troubles, 73 per cent.

ordinary examination of the mouth. Should this same ratio prove true for the balance of the 900 cases in this class, it would mean that the percentage of systemic disturbances among patients with pulpless teeth will not be diminished, but will be increased. The record chart (Figs. 3 and 4) are of value in statistical work, as it combines dental and medical conditions. If a chart of this kind were adopted by all industrial dental clinics, and all conditions recorded, the results to be compiled at one central office, much valuable and interesting data would be se-

cured. Data that will be sufficiently trustworthy can only be drawn from many thousands of cases. It is impossible to secure sufficient data from only one dental clinic; such statistics will need the cooperation of all the industrial dental clinics throughout the country.

No hospital is properly equipped to take care of patients, particularly those who are helpless and confined to their beds, that does not have a dentist in attendance and a complete staff of dental hygienists to give daily care to mouth hygiene.


Metropolitan Life Insurance Company
(INCORPORATED BY THE STATE OF NEW YORK)
DENTAL DIVISION
DAY MONTH YEAR
NAME | DIVISION | SECTION | TIME 'PHONED | TIME IN DENTAL DIVISION: ARRIVED | WORK STARTED | WORK FINISHED | TOTAL | DENTIST

A continuous record of examinations made is kept which shows all essential matters relating to the department from which the patient comes, the time consumed, and the man who rendered the service.

There is not the slightest doubt that insurance companies are taking unnecessary risks in the issue of large policies, when a careful dental and radiographic examination is not made of the applicant. The same applies to all hospitals, and it is a most remarkable fact that less than 2 per cent of the hospitals of our country make any sort of provision for dental examination, dental radiographic examination, or dental treatment.

While it is true that hospital dental examinations and dental treatments might not prove as valuable from a statistical point of view as those secured in industrial dental clinics, the care of hospital patients would probably be conducted with greater prospects of the recovery of health of those so treated. Many virulent diseases not caused by these dental infections and pulpless teeth, are treated successfully only after the dental infections are removed.

It must not be inferred from this that we ignore the fact that other focal infections play their part; we refer in this category to those cases where the presence of other focal infections has been carefully looked for and eradicated.

The question whether it is advisable or inadvisable to retain teeth, the pulps of which have to be removed, is a question that can only be scientifically answered through the cooperative efforts of the medical and the dental professions in securing a large array of figures from which accurate percentages may be found.

As nutrition is the most important problem in the care of convalescent patients, it is astonishing to find that hardly a hospital in the country gives any attention to the scientific and proper care of the mouth. The difference between a clean mouth and a dirty one, from a bacteriological viewpoint, is so great that it may well be that the question of success depends largely upon mouth condition. "The difference by weight and count in the number of bacteria per milligram of tooth scrapings in dirty mouths to that of reasonably clean mouths has been shown by Kligler and Gies to range from eight hundred millions in the dirty mouth to five to eight millions in the clean mouth."

Much attention is given to the training of nurses in the preparation of food for patients, but of what value is such food when prepared in unclean, dirty, and germ laden pots, pans, or dishes? It would be hard, however, to think of any cooking utensil as unclean and as harmful to the health of the patient as is an unclean and uncared for mouth, yet, the vast majority of patients in hospitals have unclean and uncared for mouths.

None but those specially trained to do this work can properly understand how to care for the mouth, and the day can not be far distant when those in charge of hospitals and sanatoriums will appreciate the necessity and importance of this work.

CARDIAC CLASSES FOR SCHOOL CHILDREN

Special classes have been conducted for the past two years by the Educational Alliance of New York for the benefit of children suffering from cardiac conditions, the work having been supplemented by a social service department, with results so gratifying that an appeal has been made to the Board of Education to provide such classes for all who are in need of them.

BREATHING ROCK DUST

The United States Public Health Service recently issued the following news item relating to the breathing of rock dust:

Over 200,000,000 tiny particles of dust, as sharp as ground glass, are breathed into the lungs and air passages with every cubic foot of air in some of the factories in the United States, according to a survey made by the Public Health Service.

Such dusts breathed into the lungs are never expelled. Photomicrographs show the tiny particles to be exceedingly sharp and jagged, and chemical tests prove them to be practically insoluble. Work under such conditions invites respiratory diseases and makes a real health hazard. Similar investigations in chemical factories showed that laborers were frequently exposed to poisonous fumes and gases.

The investigation was made at Niagara Falls because plants were engaged in the manufacture of abrasives, chemicals, gases, electrodes, carbons, metals, and alloys. In all of these factories the laborers were found to be exposed to dangers which would eventually incapacitate them for further work. Fortunately, over 60 per cent of the labor in these plants seeks new employment monthly and the result of exposure to such dangers is not evident, as it would be if the workers remained at the same work for longer periods.

As a result of the survey, industrial hygiene engineers devised means of removing the dust from the air and minimizing hazards from fumes and poisonous gases. In spite of the fact that the installation of such devices was expensive, factory managements immediately put them into use.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

NEGLECTED DEFENSES AGAINST DISEASE

In dealing with the great group of communicable diseases which are transmitted by direct contact between man and man we have two main lines of defense,—isolation combined with disinfection of discharges, and the stimulation of artificial immunity by the use of sera and vaccines. No one would, of course, desire to minimize the importance of the former line of procedure; yet as a matter of actual experience such application as has been made of the knowledge we possess in regard to isolation has yielded results of relatively slight importance in comparison with the achievements of general sanitation and of serology. Diseases which have been demonstrably controlled on a large scale are those which, like malaria and typhoid fever, are due to environmental conditions outside the human body or those, like smallpox and typhoid fever again, controllable by specific vaccine therapy. Of the contact-borne diseases which are dealt with by isolation alone, scarlet fever is the only one which shows a marked decline, and the coincidence in this case may well be an accidental one.

In view of these facts, it might be supposed that when the discovery of a specific serum does make it possible to secure definite and tangible results in dealing with a member of this baffling group of disorders the discovery would be received with eagerness and applied with immediate effect. The breaking down of the barriers of human inertia is, however, often as slow a process as that of scientific research; and only organized and aggressive leadership gradually succeeds in bridging the gap between theory and practice.

Thus it happens that a quarter of a century after the discovery of diphtheria antitoxin the fruits of that discovery are not fully garnered. We possess a more complete knowledge of diphtheria and a more complete power over diphtheria than in the case of any other communicable disease. We can detect the incipient case and the carrier. We can measure natural immunity by the Shick test. We can produce passive immunity by the use of antitoxin and active immunity by the use of toxin-antitoxin mixtures. Every weapon which could be needed to fight this enemy is in our hands, yet diphtheria continues to occupy third place among the communicable diseases and kills eleven or twelve thousand persons in the registration area each year.

The recognition of the importance of medical attention in every case of sore throat in a child and the prompt use of antitoxin by physicians in every case that simulates diphtheria would do much to reduce this factor in the death rate to small proportions. The application of the Schick test to all children entering school, and the immunization of all positive reactors with toxin-antitoxin would accomplish even more. The routine treatment of infants of six months with the toxin-antitoxin mixture would stamp out the disease completely. Is it not time that the health officers of the country should set themselves vigorously and effectively at the task of persuading the medical profession and the public to banish diphtheria, with typhus and yellow fever, to the limbo of historic pestilences.

In pneumonia we are dealing with an enemy far more deadly even than diphtheria, an enemy which kills over 100,000 persons in the registration area in normal years. Here our armamentarium is far less complete than in the case of diphtheria, yet for the pneumonia caused by the Type I pneumococcus, which in ordinary years probably causes about one-fifth of the deaths due to pneumonia in all forms, we have a serum of proved therapeutic value. The least we can do, as health officials or as physicians, is to see that in all cases of lobar pneumonia the type of the infecting organism is determined and serum used for the treatment of every case in which the Type I pneumococcus is the primary invader.

There is no more fruitful line of effort for the

health officer than the stimulation by every means in his power of the use of serum therapy as a weapon against diphtheria and pneumonia; there is no graver responsibility resting upon the practising physician than the duty of making the fullest use of the recent contribution which bacteriology has made to the machinery for combating two of the most deadly communicable diseases which continue to menace mankind.

EDITOR.

A CRITICAL SURVEY OF PUBLIC HEALTH TOPICS

By JULES SCHEVITZ, General Secretary, Oklahoma Tuberculosis Association, Oklahoma City

I. What Are the Duties of the Private Health Agency?
II. School Medical Supervision in Framingham.
III. Poisoning by Wood Alcohol.

I. WHAT ARE THE DUTIES OF THE PRIVATE HEALTH AGENCY?

CONSIDERATION of the functions of public and private health agencies—that is, the official health department on one hand and the voluntary health organization on the other—is bound to bring forth many differences of opinion. It being admitted that to the public health officials is intrusted the responsibility of protecting the community from disease, the question is then asked what part has the private health agency in such a program?

There seems to be a disposition on the part of certain workers to assign to each agency a definite share of the program. For example, Dr. H. W. Hill, who has had experience as an official health representative as well as the head of a voluntary health agency, intimates that the official health department should concern itself more with carrying on its police functions and leave many phases of the health educational program to the private organization.

To quote Dr. Hill:[1]

> The whole time health officer who does his own proper duty against disease will have his hands full and will find that non-compulsory fields have waiting to occupy them staunch moral supporters with time and money plentiful, who will cooperate with him in his work all the better for working themselves on these voluntary measures.

The validity of this action was quickly challenged and the following objections to the plan submitted by Dr. Hill have been offered:[2]

(1) Divided responsibility for public health will result in lowering standards of official health administration.

(2) Compulsory health work is dependent for its efficiency on the educational preparation of the public for compulsion, and health education, to be most effective, must be brought to the public by the one who has official authority, namely, the health officer.

(3) If official health departments are concerned only with police regulation of infectious diseases, there will be little in official health service to attract well trained, whole-time executives.

(4) The removal of educational health work from the control of official health departments will handicap such departments in securing adequate appropriations, even for the very essential work necessary.

A recent editorial in the *American Journal of Public Health*,[3] entitled "What Are the Duties of the Public Health Officer?" discusses the relation between the public and private health fields from the wrong angle. As the title of the article indicates, there seems to be some doubt as to the functions of the public health official. It should be distinctly understood that the public health officer, as the official guardian of the public health, should employ every known method for the control of disease and the promotion of health. The form of activity employed by the health department must not be limited or circumscribed in any manner. There is no need for defense of the activities or functions of the public health officer. If any question is raised, it should be, "What Are the Duties of the Private Health Agency?"

Has the private or voluntary health organization any justification for its existence? Certainly it does not operate to hinder or limit the progress of the official department. Let us see where it can do the most good. Private health agencies have played an important rôle in the development of the public health campaign and will continue to do so in the future by conducting health activities which may at first be considered experimental.

The demonstration to the proper public officials of the proved efficacy of certain novel health measures is acknowledged generally to be a valu-

1. Hill, H. W., M. D.: What is the Matter with Public Health Today? Am. Jour. Public Health, November, 1919, 827.
2. McCombs, Carl E., M. D.: Public Health Departments and Private Health Agencies, Am. Jour. Public Health, December, 1919, 951.
3. What are the Duties of the Public Health Officer? Editorial, Am. Jour. Public Health, December, 1919, 966.

able contribution by the voluntary agency to the health movement. The employment of public health nurses, the operation of health dispensaries, and the development of the public health educational program, are a few examples of advances in the modern public health movement in which the voluntary agency occupied a leading part.

As soon as the official health department is prepared to assume these new activities, they should be turned over to it by the private organization. In fact, one of the most important functions of such an agency is to aid in the growth and expansion of the program of the official department. There are many instances where public health officials will admit that certain activities can be handled more efficiently by the private agency, because of the presence of politics in the health departments or for other reasons; but in these cases the private agency should strive to remove the obstacle in the way of efficient governmental activity.

There will probably always be a legitimate and useful place for the volunteer health organization. To even the most highly organized health department the efforts of the private agency may be found extremely helpful.

II—SCHOOL MEDICAL SUPERVISION IN FRAMINGHAM

THE Framingham, Mass., Health Demonstration, conducted under the auspices of the National Tuberculosis Association and financed by the Metropolitan Insurance Company, has been more than an attempt at the discovery and control of cases of tuberculosis in that city. It has resulted in the building up of a health machinery in Framingham which places that city in a class by itself.

Framingham is attempting to solve its school health problem in its broadest sense, and undoubtedly has the best school health machinery in the state. The staff consists of a full-time school physician, nurse, dental hygienist, teacher of posture training, physical training teacher, and a part-time dentist for a unit of approximately 2,500 grade school children. An account of the results of the physical survey of the school children appears in a recent issue of the Boston Medical and Surgical Journal.[1] The following figures selected from the complete tables give a good cross section of the condition of child life in Framingham. Future surveys will show how effective this school health machinery has been in dealing with existing conditions.

1. Bost. Med. and Surg. Jour., 1919, clxxxi, No. 14, p. 427.

PREVALENCE OF CERTAIN PHYSICAL DEFECTS

Total number of children examined.....2,449

	Percentage of Total		Percentage of Total
Nutrition Excellent	6.8	Defective Vision	6.5
Nutrition Good	43.0	Defective Hearing	1.1
Nutrition Fair	41.9	Discharging Ears	1.0
Nutrition Poor	8.2	Skin Diseases	3.5
Defective Teeth	60.0	Postural Defects	12.0
Enlarged Tonsils	46.0	Nasal Obstruction	12.0
Anemic Condition	16.1	Pulmonary Tuberculosis	0.45
Enlarged Glands	45.2		

The children were stripped to the waist and a thorough examination of the lungs made. Eleven cases of pulmonary tuberculosis were discovered; 64 others will be kept under observation.

III—POISONING BY WOOD ALCOHOL

THE enemies of prohibition have probably viewed with some satisfaction the wave of wood alcohol poisoning which spread over the country during the Christmas holidays. Considerable publicity was given everywhere to all deaths from this cause and prompt and energetic action on the part of health and prohibition enforcement authorities was in evidence.

The use of methyl alcohol for either internal or external human use constitutes a violation of the health regulations of most local and state health departments. With the poisonings resulting from the substitution of methyl for ethyl alcohol in beverages, more stringent regulations were passed, in some cases governing the methods of sale of the wood alcohol. Because of the very apparent and easily recognized effects of this poison and the watchfulness on the part of the authorities, it is not expected that the use of wood alcohol for drinking purposes will be at all widespread.

A warning issued by the New York City Health Department regarding the adulteration of external preparations with wood alcohol, says:[1]

> Since refined wood alcohol tastes like ethyl alcohol, and, in the past, has been used in the preparation of essence of peppermint, Jamaica ginger, lemon extract, cologne, Florida water, witch hazel, and liniments, it is important to remember that poisoning may result from such adulteration. Such use . . . subjects anyone attempting it to criminal prosecution.

The symptoms of wood alcohol poisoning are similar to those from ethyl alcohol, only they come on more slowly and are more prolonged.

Grip Epidemic in Japan

Reports are current to the effect that an epidemic of influenza similar to that of last year has broken out in Japan. Japanese papers report that governmental measures have been taken to control the disease.

1. Weekly Bulletin, Health Department of the City of New York, January 10, 1920.

DETECTION OF TYPHOID CARRIERS

By F. M. MEADER, M.D., Director, Division Communicable Diseases, New York State Department of Health, Albany, N. Y.

TYPHOID fever is so well under control in many of the states that the extensive outbreaks due to water-borne infection or to infected milk are no longer recognized. The cases are now, aside from secondary cases in the same family, only few, and occur sporadically in widely different sections of the county. The exact source of infection is often very difficult to determine. This has brought about new methods in the effort to reduce typhoid fever to a still lower case incidence.

THE MENACE OF TYPHOID

Typhoid fever is now so well under control that health measures directed against it are more often concerned with sporadic cases than with typhoid in epidemic form.

The cases that occur are usually either secondary cases in the same family, or sporadic cases in widely different sections.

To eradicate the disease, the health officer must trace the connection between these sporadic cases. By far the most difficult source of infection to trace and the most baffling to control is the typhoid carrier, and methods for the cure of typhoid carriers are among the most needy research problems.

Investigation by Counties

The efforts now to control this disease should be placed upon a larger unit of area than has hitherto been done. We have been accustomed to investigate the cases of typhoid fever in single municipalities. It now seems best to investigate typhoid fever by counties, selecting first those counties in which, during the year, the largest number of cases have appeared. When this is done, it is possible to trace the connection between sporadic cases occurring in the various municipalities. The person who investigates these cases must be particularly well trained in laboratory procedures, so that he can apply promptly methods which will aid him in deciding the usefulness of the various clues which his detective instinct presents to him. The epidemiologist is a detective whose duty it is to discover the hidden lair and paths leading thereto, for the infectious agents of communicable disease.

The epidemiologist, in his search for sources of infection of typhoid fever, realizes that the cases have their source of infection in either a case or a typhoid carrier. It therefore becomes necessary for him to find out the possible cases or carriers with whom the patient has come in contact just before the incubation period of the case in question. The first information of value to determine is the date of onset. He then knows that his patient was infected from seven to twenty-one days before the onset .

In his search it is often found that unreported cases have existed in mild form in whom the presence of the disease was not suspected. It is then essential to determine whether or not the party did have typhoid fever, and for that purpose it becomes useful to take a sample of blood for a Widal test. Often these missed cases prove to be the connecting link between his patient and the case or carrier for whom he is searching, so that the epidemiologist must be familiar with immunity reactions to help him in directing his efforts.

Laboratory Close to Case

The epidemiologist must also be able to discover the typhoid organism by means of bacteriological examination. If he realizes how difficult it may be in certain instances to isolate the organism, he will be more careful in obtaining his specimens and he will insist upon its prompt examination. He will sometimes desire to make the bacteriological examinations at the place rather than transfer material any distance. In recent years the use of containers which hold a certain amount of glycerin has proved of considerable assistance, so that these specimens of material can be transmitted longer distances to the laboratory than has hitherto been possible.

Often the question of an infected water supply must be ruled out before proceeding in the detection of other sources of infection. The simple chemical methods of examining water for an unusual amount of chlorin may be of great assistance, so that the epidemiologist must be equipped with considerable knowledge of laboratory technic. Immunity reactions, bacteriological methods, and chemical procedures should be at his disposal.

There is another group of phenomena which will be of the greatest assistance to the epidemiologist in his search for sources of infection: namely, the characteristics of outbreaks of ty-

phoid fever when the infectious agent is conveyed by various means, for example,—water-borne, milk-borne, fly-borne, communicated by contact. Each course of transmitting infection has a history of onset to the outbreak which is peculiar to itself. Milk-borne outbreaks will appear suddenly, followed by a rapid decline. The usual incidence will be among women and children more than men, and the cases will appear in unusual number among the customers of certain dairies. Water-borne outbreaks will occur among persons residing in an area supplied by a particular water. The usual seasonal prevalence is spring or late winter. An outbreak will follow a change in water supply. A large percentage of the cases will be among adults, and an examination of the water reveals evidences of pollution.

When well waters are infected, there is suddenly a large number of persons who use that particular water who become ill with the disease, whereas there is comparative freedom from typhoid fever among persons who do not use water from that particular well. Outbreaks which are spread by contact usually occur, few in number, at irregular intervals and over a period of considerable time. Sanitary conditions may be bad, but this is not always apparent to the general public.

Conditions to Be Noted

In finding the sources of infection, as stated above, the first bit of information which the epidemiologist will obtain is the approximate date of the onset of the disease. He will then study carefully the period of seven to twenty-one days prior to the date of onset. His inquiry will be limited to this period. He will inquire into associations with cases, unusual visits or associations. Picnics, parties, and unusual food consumed during this period, will be carefully inquired into. The association of the case with persons who had typhoid fever the previous year will be investigated. If this work is carefully done with these obscure cases, it will in a large proportion of the cases be possible to show an association with a person who complains of symptoms of gall stones, jaundice, or recently infected with typhoid fever.

It is of the greatest importance, when possible, to obtain all information from the patient himself rather than from friends or relatives; however, if the patient is very ill, he should not be bothered with questioning upon this subject. If the information given by friends is not sufficiently definite to locate the source of infection, the matter of questioning the patient should be deferred until he is able to give the desired information.

When a person is suspected of being a typhoid carrier, it is necessary to obtain from that person a specimen of feces and urine for bacteriological examination. In obtaining the specimen it is usually wise to obtain specimens from several members of the household, and not indicate the suspicious person particularly. Further, it is often of the greatest service to enlist the physician's cooperation in the matter and ask him to obtain the specimens. The reports which come from the laboratory will be better received by the patient if the specimens are collected by the family physician than if obtained by persons with whom they are unacquainted.

When there are received from the laboratory reports which indicate that a certain person is a carrier, it then becomes necessary to take up the question of what to advise the person who is a typhoid carrier.

At the present time we have about fifty-six typhoid carriers under observation in the state of New York, exclusive of New York City. A report blank is sent quarterly to the health officers of the municipalities in which these cases are located, copy of which is presented herewith.

(1) The patient is notified that he or she is a typhoid carrier. This is probably one of the most effective measures to take, as intelligent persons who realize that they are carriers are able to take care of themselves and their excreta in a way that they will not become a menace to other people of the community.

(2) Typhoid carriers are not permitted to have anything to do with the handling of milk or food supplies for public consumption. Where this restriction is such a hardship that the person is deprived of a livelihood, the State Department of Health, through the county poor officer, gives an allowance monthly to supplement the earnings of the patient who cannot engage in work which will endanger food supply. Housewives are permitted to continue the preparation of foods for their families, but not for public consumption. The remaining members of the families are expected to be immunized with typhoid vaccine.

(3) Sanitary conditions of the place are so arranged that access of flies to excreta is impossible, and drainage into water supplies is prevented.

(4) The patient is advised to have a disinfectant for the hands always easily available, and that thorough cleansing and disinfection of the hands be done several times daily.

(5) It is not deemed necessary that the information that a person is a carrier should be given to more than the health officer, the physician, the patient, and some other member of the family.

The withholding of this information from the public by the health officer is of great assistance in enforcing regulations should the patient be inclined to be careless, as all carriers, of course, will do almost anything to keep this knowledge from their friends.

(6) Often the Department sends a letter to the patient explaining the condition, outlining the procedure mentioned, and asking for their cooperation. This then is followed by a visit from the health officer. We present a copy of letter usually sent to these carriers which indicates the tone believed to be most effective.

The matter of treating these carriers is one which has received some attention by this department. Three or four carriers have apparently been cured by the use of typhoid vaccines, but so many others have not been cured by the use of vaccines that its value as a general measure is problematic. The removal of the gall bladder is probably the best method of curing typhoid carriers. It will not always cure the carrier, but in many instances apparently it does. In our opinion, the methods for the cure of typhoid carriers are among the most needy of research problems. As the number of carriers is certainly very large, the establishment of a recognized method for their cure would be of great benefit.

COPY December 24, 1919.

Dear Mrs. C.:

This Department has been engaged for some time in the work of finding the sources of cases of typhoid fever in various parts of the state. Among the frequent sources of infection are found to be persons who have had typhoid fever years ago but who are still harboring the organism in their bowel excreta. In these cases the usual source of infection is the gall bladder, and organisms of typhoid fever multiply here and discharge out into the intestinal tract. These people are immune to the disease, hence do not suffer from it now, but they are a great source of danger to other people who are not immune to typhoid fever.

The examination of the specimen of excreta which you supplied this Department a little while ago revealed the presence of these organisms, indicating clearly that, unfortunately, you are what we call a typhoid carrier.

We have a great many typhoid carriers in the state and are requiring of them simple precautions in the matter of disposal of their excreta and a careful toilet of their hands. A disinfecting solution should always be available for disinfecting the hands several times daily. It is also required that these people have nothing to do with the handling of milk, milk products, or the utensils used at a dairy, or with food that is to be used raw for public consumption. These people are further prohibited from preparing food for public consumption. They are, however, permitted to prepare food for their families; but the members of their families should be immunized, in order to prevent them from becoming infected. Your physician can advise you regarding this matter.

The sanitary conditions of the toilet must be such that discharges from the bowels can be disposed of without flies having access to same and where it will not drain into water supplies. Enclosed is the Department's circular of special rules and regulations to be observed, which your health officer will explain to you in detail.

The question of curing the condition is a very difficult one. Recently five out of seven typhoid carriers were cured in one of the army hospitals by having the gall bladder removed Up to the present time this method is the most satisfactory known. If you would care to take this matter up with your physician, I shall be glad to supply him with any information which we have.

With our other carriers it is found that the most important precaution is to let the patient know that she is a typhoid carrier. She is then able to take proper precautions to prevent the infection spreading.

This Department hopes for your cooperation in this matter and expects that we shall have no further trouble in regard to the spread of this disease.

Very truly yours,
Director, Division of Communicable Diseases.

Hermann M. Biggs, Commissioner, State Department of Health, Albany, N. Y.

Division of Communicable Diseases

QUARTERLY REPORT BLANK FOR TYPHOID CARRIERS

To the Commissioner:

Dear Sir: The following report is offered for the quarter ending March 31, June 30, Sept. 30, Dec. 31, 19.....

(Cross out words that do not apply)

Town .....
Village ..... County.....Primary Dist. No.....
City .....
Patient..... Street Address.....
Attending Physician..... Address.....
During the quarter M..... has not engaged in the handling of foods. The following kinds of work have been done .....
.....
.....
M.....has in his possession.....lbs. chloride of lime and.....disinfectant for hands. Approximately .....lbs. of chlorid of lime and.....disinfectant have been used during the quarter. Excreta are deposited in a flush closet, privy, trench; a spring, well is / is not located near the cesspool, privy, trench; flies do / do not have access to excreta. The patient uses an individual towel and frequently disinfects his hands. The patient's / her excreta were examined as follows:
Date..... Result..... By Whom.....
.....
.....

The following trips out of this municipality have been taken:

To..... Date..... Date Returned.....
To..... Date..... Date Returned.....
How many people residing in the home? .....
How many have been immunized? .....

Total cases of typhoid fever occurred in this municipality during the quarter..... The following number of cases have received their infection from this typhoid carrier.....

Signed .....H. O.
Address .....

Note: In certain instances it may be advisable for the health officers to ask the attending physician to obtain the above information.

REDUCTION OF INFANT MORTALITY

By D. M. LEWIS, M.D., State Director, International Health Board, Charleston, W. Va.

In a previous article[1] I have shown the results obtainable from the application of the study of the causes of infant mortality as gained from mortality statistics. Reasons were given as to why part of the 31 per cent always listed as due to congenital malformations and debility, and the 21 per cent listed as due to causes not susceptible of analysis, might not as well be dependent upon the same factor, namely, the acute infections. If so, curve rates for an ordinary year as contrasted with an extraordinary one for the acute infections should show relations with that for congenital malformations and debility. The relationship not only in general but in many minor particulars stands out so clearly in the records which I keep of other cities in contrast with work done here, as to be unhesitantly placed on record as proof of our premise.

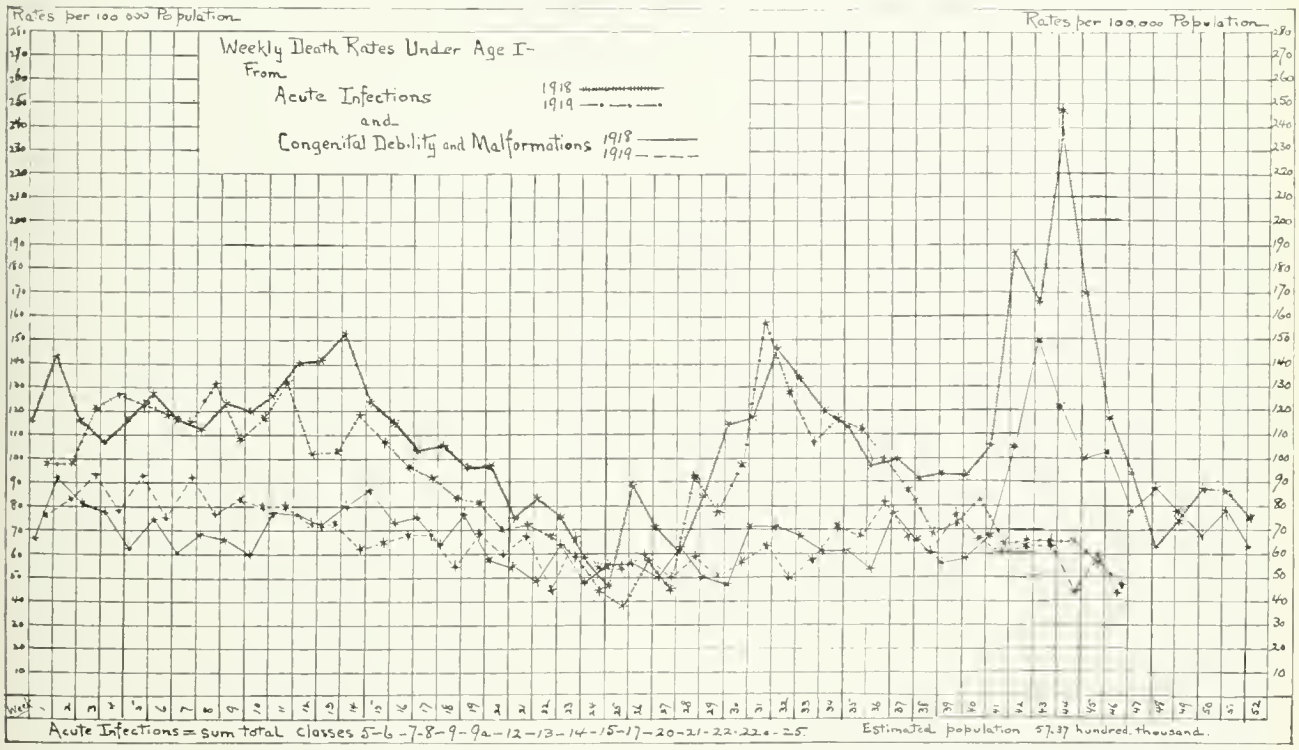
The Method of Comparison

The illustrated curves are from the *Weekly Bulletin* records of New York City converted into annual rates for 100,000 population. I have used the same population for both years in that comparison should be made only between the curves of each year, and for the fact that while the estimated population in 1918 was 57.37 per hundred thousand, the Bureau of the Census estimates the population for July 1, 1919, as 52.16 per hundred thousand, while New York claims 60.00 per hundred thousand. After the present census is taken, correction made for one of the two years will make comparative readings of both curves for both years possible should one wish such relationship. In that under "all other causes" as a cause of death there is weekly a further amount of congenital causes in excess of those there listed as from infections, there should not be looked for an absolutely accurate rate for either of the two curves.

Agreement of Curves

The general agreement of the two curves during the winter of 1918 is very striking compared to the minimal ones of the end of the first half year. No less so is that of the less prolonged summer rises. Most striking is the agreement of the October, 1918 (weeks 40-44) curves. The absence of a maximum rise in the congenital curve for the forty-fifth week should be regarded as a further strong point in the argument. Medical diagnosis was predominantly influenza. Specific-

1. Lewis, D. M.: Infant Mortality, Theory and Results, Bost. Med. & Surg. Jour., Oct. 17, 1918.



Curves indicating weekly death rates in 1918 and 1919 of infants under one year of age from acute infections and congenital debility and malformations. The curves are based on the *Weekly Bulletin* records of New York City converted into annual rates for 100,000 population.

ally, one may read the apparent first "flu" wave of the last two weeks in March and first week in April, 1918 (weeks 12-13-14), the increases of the first two months of 1919, and the lesser rates of the summer of 1919. Worthy of further interpretation is the lag of the congenital curves of summer infection compared to those of winter. As not germane to the discussion, we merely acll attention to the fact.

The Need for Close Analysis

Inasmuch as the sum of the deaths and their total in terms of specific groups are being used as the results of prenatal clinics and other welfare activities, Nature's hurricane of 1918 which spoiled the mortality records at all ages as well as those for infant mortality for the year as compared to the continuing previous reductions, make essential renewed studies from the point of view of mortality statistics rather than glossing over the year as an unusual one representing a mass of increased social disturbances.

Since the completion of the accompanying chart I have found in a recently published book[2] English statistics which are not only corroborative of the point last made, but are definite as well of the part that the infectious diseases play in infant mortality. That relation as influenced by prevailing "grippe" years, though unexplained, is also shown in the given statistics. When one reads into "urbanization" as the given cause for the mortality records, the lesson we should have learned from the late war,—excess of infections in rurals only when rurals meet urbans,—we shall return to a study of vital statistics and find the definitely workable basis for controlling infant mortality.[3]

Summary

Vital statistics show that there is a very definite relation between the deaths from acute infection under the age of one year and the congenital malformation and debility for the same age. The increasing emphasis given to prenatal and other infant welfare work where not corroborated by statistics should be checked up with the large amount of available statistics which show that the prevalent views are erroneous, and that efforts which ignore the acute infections as causative factors are more than a waste of money and energy; they contribute to the continued vicious circle of curative rather than preventive measures of public health.

The course to an adequate mental adaptation is sometimes stormy, but it is far less devious than the paths by which people try to escape.—Fred. Lyman Wells, M.D.

2. Brend: Health and the State, Constable & Son, London, 1917.
3. Lewis, D. M.: Use of and Value of Statistics, Bost. Med. & Surg. Jour., Apr. 11, 1918.

THE IMPROVEMENT OF HOUSING CONDITIONS IN GREAT BRITAIN*

By Our London Correspondent

The crux of the entire health problem of Great Britain appears to depend mainly on the question of housing accommodation. The Ministry of Health by the mouths of its Minister and his chief medical advisers had stated in the most definite manner that if the situation as regards housing is not remedied as quickly as possible, the health of the people will not only show no improvement but will go from bad to worse. As Sir George Newman, Chief Medical Adviser of the Ministry, points out in his memorandum on preventive medicine issued recently, the housing problem is twofold in its relation to disease, namely, the insufficiency and unsuitability of the house accommodation available. Insufficiency naturally leads to over-crowding. Unsuitability may be due to inadequate cubic capacity, absence of ventilation, or insanitation. It is obvious that in the train of over-crowding, ill ventilation, or insanitation follow troubles of every description, ranging from minor ailments to incapacity, disease and death. According to Newman, and the statement appears to be justified, cine in which the evidence is so general as in regard to the ill effects of bad housing upon the human organism. mendous as to daunt any but the most sanguine.

The report on the Royal Commission on the Housing of the Industrial Population of Scotland, 1917, provides perhaps the most masterly and terrible indictment of the housing conditions which prevail in certain industrial centers ever penned. Broadly speaking, there are three evils which proceed from bad housing:

(1) There is diminished personal cleanliness and physique, leading to debility, fatigue, unfitness, and reduced powers of resistance. The general deterioration in the health of the people is a worse feature of over-crowding than its promotion by infectious disease. It has the effect of reducing their stamina, and thus producing consumption and diseases arising from general debility of the system whereby life is shortened.

(2) A second result of bad housing is that the sickness rates are relatively high, particularly for infectious, contagious, and respiratory diseases. Sir Shirley Murphy showed in 1898 that in districts of London where overcrowding, that is more than two persons in one room in tenements of less than five rooms, was under 10 per cent, the death rate from pulmonary tuberculosis was 111 per 100,000 people; but where the overcrowding was more than 25 per cent, the corresponding death rate was from 209 to 259 per 100,000.

(3) The general death rates are higher and the expectation of life is lower where there is over-crowding. The evidence is overwhelming and comes from all parts of the world that the worse the people are housed the higher is the death rate. There is no need to bring forward statistics to prove this point. The statement, then, that inadequate and insanitary housing goes hand in hand with bad morals, bad health, bad physique, and a lowered standard of mentality, may be taken as proved.

There is no cause for wonder therefore that the British Ministry of Health, as the first step to improve the health of the population, should try to solve the housing problem. It is a problem at the present time most difficult almost impossible to solve successfully. The cost of building new houses and of restoring defective dwellings is so tremendous as to daunt any but the most sanguine and boldest spirits.

*From a staff correspondent of MODERN MEDICINE, London, January 16, 1920.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

OUR RURAL HEALTH PROBLEMS

MORE than 50 per cent of the population of the United States is rural. The important relation between rural hygiene and the national health is therefore self-evident. When one speaks of the remarkable accomplishments of the modern public health movement in the reduction of the death rate, the elimination of certain diseases, the promotion of the public health in general, the statement should be modified to make it clear that this hygienic advancement, gratifying as it is, has been practically limited to the larger cities in the country. Very little effort has been expended in the improvement of rural sanitation, with the result that death rates of even the most congested cities compare favorably with those of rural centers, which are considered to be healthful abodes. Studies of the Children's Bureau and the United States Public Health Service into rural health conditions have revealed some surprising findings. For example, it was found that:[1]

> Of over 50,000 typical farm homes distributed over a wide range of our rural districts, only 1.22 per cent were provided with sanitary toilets, and at some which were properly equipped, the equipment was not used by all members of the household; at 68 per cent of these homes the water supply used for drinking and cooking purposes was obviously exposed to contamination from privy contents or from promiscuous deposits of human filth, and often also pollution from stable yards and pigsties; and at only 32.88 per cent were the dwellings during the summer season effectively screened to prevent flies (having free access to nearby deposits of human and other filth) from entering dining rooms and kitchens and contaminating the foods for human consumption exposed therein. In numerous instances a pond of water of no use and which could have been drained away in an hour by one man, was found near the dwelling, providing a place for the breeding of mosquitoes which play such an important rôle in the serious annual occurrence of malaria in the household.

Examination into rural conditions in counties in Kansas and North Carolina[2] indicate high maternal death rates from causes pertaining to childbirth. Few women receive prenatal advice, and the nursing care at confinement consists largely of services of untrained relatives and neighbors. Inability to secure medical attention at childbirth is not rare and this is more true of postnatal visits. Infant mortality rates have not been very high, probably because of the almost universal breast feeding of infants.

It has been well said that[3] "the rural districts of the country are suffering from ignorance even more than from poverty." Since the education of citizens is distinctly a state function it is believed that . . . the responsibility for existent deficiencies lies at the doors of the state departments of health.

The county demonstration work in rural sanitation as conducted by the Public Health Service deserves hearty commendation and encouragement. The expenses for this work are generally shared by the county, the state board of health, and the Public Health Service. Congress should lend its fullest support to these life saving efforts. The demonstration public health nursing in rural counties in Wyoming and Louisiana sponsored by the Children's Bureau will also be watched with keen interest. The need for public health nursing is manifest; the lack of sanitary homes, overcrowding, insufficient food of the right sort, poor water supply, and unsanitary privies, complicate the situation.

No big step in social progress is possible without the active sympathy of large masses of the community, and in this respect the movement for improving the national health has the greatest support.—Brend.

1. Public Health Reports, United States Public Health Service, November, 1919, p. 2523.
2. Rural Child Welfare Series, Children's Bureau, United States Department of Labor, Washington, D. C.
3. American Medicine, October, 1919, p. 628.

TRADE UNION DISABILITY INSURANCE*

By BORIS EMMET, Ph.D., Schloss Factories, Baltimore, Md.

OPPONENTS of compulsory state social insurance point to the existing trade union sick benefit systems as effective voluntary agencies for furnishing relief to wage earners in cases of disability due to sickness. It is, therefore, of great interest to students of industrial medicine to reveal the validity of this contention.

There is need of some general provision for adequate medical care in case of sickness, and cash compensation for loss of time.

That this need is not met by trade union benefits is shown by the fact that the per capita disability expenditure in 1918 was forty-one cents, the average weekly payment in all but two funds being less than five dollars.

Trade unions do not even care for all the disability in their own ranks. Compensation that does not provide medical care and as full restoration as is possible only begs the question of adequate health protection.

Two benefits are usually provided for by proposed state social insurance schemes,—medical benefits or medical care, and cash benefits. The former is, in the majority of instances, admitted to be the more important and costly one. Inasmuch as no trade union system in existence is known to provide for medical care,[1] the value of trade union, voluntary sickness insurance is nil from the point of view of medical attention. The brief study presented herewith concerns itself, therefore, wholly with the cash benefits paid by trade unions in cases of temporary disability.

Extent of Sick Benefit Systems

No actual survey has ever been made of the extent of trade union sick benefit systems in the United States. A partial survey made in 1917 by the author of this article for the Bureau of Labor Statistics, in the manufacturing centers of New York, Philadelphia, Cleveland, Detroit, Boston, and Chicago, indicated that about one-fifth of the existing local labor organizations paid some kind of temporary disability benefits. The four great railway brotherhoods and the Amalgamated Clothing Workers of America, the only large labor organization outside the Federation, do not pay any temporary disability benefits. The extent of sick benefit systems among organized labor is, therefore, synonymous with the extent of sick benefit systems in unions affiliated with the American Federation of Labor. Of the 111 national or international organizations affiliated with the American Federation of Labor, 15, with a membership of about 250,000, have sick benefit systems. The number of trade unionists receiving temporary disability benefit is, however, much greater. In view of the fact that the sick benefits paid by national unions are small, seldom even reaching ten dollars per week, many local labor organizations affiliated with the internationals in question pay sick benefits of their own. Again, some local unions pay sick benefits because of the entire absence of a sick benefit scheme in their national organization. It is estimated that the total number of trade unionists receiving cash sick benefits from their local and national organizations is at the present time about 750,000.

The claim is constantly made that the payment of sick benefits is becoming increasingly popular among trade unions. To prove this contention the annual amounts expended on sick benefits by the American Federation of Labor are quoted. These amounts, it is said, have been steadily increasing. While it is true that the absolute amounts expended on sick benefits have been increasing, the average *per capita* of membership amount has remained fairly constant. Table I shows the annual membership amounts expended on sick benefits, and average *per capita* expenditure, by year, since 1902.

Table I shows that the membership of the American Federation of Labor has about trebled since 1902 and that the amount expended on disability benefits has also trebled. One may, therefore, conclude that the extent of prevalence of disability insurance systems among trade unions has changed but little since 1902. This conclusion is substantiated by the *per capita* of disability benefit expenditures shown in the last column of Table I. This *per capita* expenditure was forty-two cents in 1902 and forty-one cents in 1918. The average *per capita* expenditure for all seven-

*This is the first of a series of three articles by Boris Emmet, Ph.D., on existing forms of disability insurance. The succeeding articles will discuss fraternal and establishment fund disability insurance. Dr. Emmet has given intensive study for years to these forms of insurance, and the editors are happy to present his researches to the readers of Modern Medicine.

1. "Operation of Establishment and Trade-Union Disability Funds," Monthly Review of the United States Bureau of Labor Statistics, August, 1917, pp. 17-36.

teen years covered by the table was forty-five cents.

The administration of the sick benefit funds of trade unions is usually carried on by the same officers that administer the general affairs of the organizations. In national and international funds the general secretary-treasurer is, as a rule, in direct charge. The investigation of the validity of claims is generally in the hands of standing committees of the local unions. One national organization only is known to have on its staff a corps of traveling investigators who go from locality to locality for the purpose of supervising the administration of the scheme. Membership in the union as a rule, entitles one to sick benefits, provided his good standing on the books of the organization is established.

In a great majority of the union funds no physical examination is required of a member joining the union and the fund. A few of the funds have a special non-benefit membership class, which entitles members to all the protective features of the organization except that of sick benefits. To this non-beneficial group belong those who at the time of entrance are above the specified age—usually 50 years—and those afflicted with chronic diseases.

Practically all of the national and local unions provide for forfeiture of benefit if illness is caused by intemperance, debauchery, or any other immoral conduct. No actuarial examination of any of the benefit funds of the national or local trade union funds examined is known to have been made.

In the great majority of the funds maintained by the national or international labor organizations the amount of cash benefits paid per week is rather small, the average in all but two funds being less than five dollars. This amount is, of course, inadequate to afford full relief, particularly in view of the fact that none of the funds furnishes any medical or hospital care to its disabled members.

TABLE I—Disability Benefit Expenditures of all Labor Organizations Affiliated with the American Federation of Labor†

Year	Membership	Amounts paid in disability benefits	Per capita expenditure (in cents)
1902	1,024,399	437,059	42
1903	1,465,800	756,763	52
1904	1,676,200	582,874	35
1905	1,494,300	663,437	44
1906	1,454,200	712,536	49
1907	1,538,970	593,541	39
1908	1,586,885	731,955	46
1909	1,482,872	719,166	48
1910	1,562,112	818,557	52
1911	1,761,835	793,256	45
1912	1,770,145	816,336	46
1913	1,996,004	1,031,098	52
1914	2,020,671	965,972	48
1915	1,946,347	1,068,609	55
1916	2,072,702	838,607	40
1917	2,371,434	668,783	28
1918	3,260,068	1,329,826	41

†Source: Annual report of Executive Council of the American Federation of Labor.

Workings of Typical Benefit Funds

A report published by the Bureau of Labor Statistics in 1917[1] showed that there are no appreciable differences in the essential features of the national and local trade union sick benefit funds. As a rule, the amount of weekly benefit, the length of the waiting period, and the number of days for which benefits are paid are approximately the same.

It is, therefore, permissible to assume that the national or international sick benefit funds are typical of all the existing trade union funds. The remaining portion of this article will, therefore, be limited to a presentation of some facts and figures relating to the workings of the sick benefit funds maintained by the previously mentioned sixteen national or international organizations of which one is not affiliated with the American Federation of Labor.

Table II, which is based upon the results published in the cited report of 1917 made by the Federal Bureau of Labor Statistics, shows the principal provision of the existing sixteen national sick benefit funds:

TABLE II—Principal Provisions, Extents of Disability, and Per Capita Costs of Cash Benefits‡

Fund No.	Waiting period (days)	Maximum benefit period (days)	Weekly benefit (in dollars)	Aver. annual No. disability days per member (all disabilities).	Aver. annual benefits per member (in dollars).
1	7	78	$12.00	4.5	$8.94
2	1[1]	182	10.00	4.5	5.00
3	7	112	7.00	3.3	3.27
4	7	91	5.40[5]	—[2]	3.64[3]
5	7	700	5.00	—[2]	4.26
6	7	91	5.00	3.7	2.23
7	7	91	5.00	—[2]	4.32
8	7	91	5.00	3.5	2.03
9	7	42	5.00[4]	1.1	.79
10	7	70	5.00	—[2]	1.61
11	14	91	5.00	3.1	1.82
12	14	70	5.00	2.0	1.16
13	14	112	5.00	2.8	1.68
14	14	84	5.00	1.7	1.03
15	14	91	4.00	2.0	1.14
16	14	91	3.00	—[2]	1.56

1. No waiting period in cases of disability due to accidents.
2. No record.
3. This figure is different from the amount shown in the source, being based upon the reports of a later year.
4. Three dollars per week for female members.
5. This organization is now paying a weekly benefit of $7.60.

‡Source: Monthly Review, U. S. Bureau of Labor Statistics, August, 1917, page 29.

The presented Table II shows that the waiting period, in a majority of the national or international funds, is seven days, and that the maximum period for which benefits are paid is, in the bulk of instances, about thirteen weeks. More than three-fourths of the national funds pay a weekly benefit of about five dollars. The average number of disability days per member varied from 4.5, the highest to 1.1, the lowest, and was in a majority of instances about three days. It must be noted in this connection that the record upon which the figures of Table II are based contained only cases of sickness for which benefits were paid and that the figures given do not, therefore, include cases of sickness of less than the waiting period or of disability periods longer than the maximum time for which benefits are paid.

The specific arrangement of Table II was designed to correlate the extent of disability reported and cost of each fund with its principal provisions, such as (a) the length of the waiting period, (b) the maximum number of days for which benefits were paid, and (c) the amount of weekly benefits, all of the latter being shown for each fund in columns 2, 3, and 4, respectively, of the table. The last column of the table shows the *per capita* costs of the cash benefits. These costs vary naturally with the just enumerated three principal provisions of each fund. The highest *per capita* cost—$8.94—was that of fund number one, while the lowest cost—only seventy-nine cents—was found in connection with fund number nine. The average *per capita* (cost of cash benefits in the ten funds) having a waiting period of seven days was $3.61. The funds with a waiting period of fourteen days showed a *per capita* cost of $1.40.

Reports Only on Benefits Paid

Caution should be exercised in interpreting the figures shown in Table II. In considering the results of the investigation upon which the table was based, one must keep in mind some incidental factors which have a tendency to cause a wide discrepancy between the amount of disability reported for which benefits were paid, and the actual amount of disability. These factors are: (1) The length of the waiting period, that is, the number of days that must elapse before the payment of cash benefits begins; (2) the maximum number of days for which benefits are paid; (3) the amount of weekly benefit; and (4) the liberality with which the benefits are awarded. These factors must be considered in evaluating the figures presented because, as already stated, none of the trade union records examined contained any information regarding disabilities for which no benefits were paid. The statistical results arrived at, therefore, did not include cases of disability of a duration shorter than the full waiting period or of a duration longer than the maximum period for which benefits are paid.

The bearing of the waiting period upon the amount of reported sickness can hardly be underestimated. In connection with another investigation made by the United States Bureau of Labor Statistics it was found that not less than about one-fifth of all the temporary disability cases are of a duration as long as full seven days (Table III). The influence of the maximum benefit period upon the figures shown, although important enough, is much less important than that of the waiting period because the great majority of the trade union funds limit the benefit period to thirteen weeks.

The influence of the amount of benefit paid per week upon the reported amounts of disability, and upon the costs, comes about in the following manner: if the benefits paid are as large as the usual earnings of the beneficiary, or larger, an incentive to malinger is created. Small benefits have an opposite tendency. If the amount of weekly benefits paid is too small to afford actual relief, a member, though really sick, is not likely to cut off his regular income by putting himself on the sick list. This fact was brought out in connection with the mentioned partial survey made by the Bureau of Labor Statistics, in an attempt to correlate the amounts of reported sickness with the volume of employment. In this instance it was found that proportionately larger extents of disability were reported during the dull periods of the year when the earnings of the prospective beneficiaries dropped to their usual minimum.

A few words must be said regarding the sev-

TABLE III—Proportion of Cases of Specified Duration and Number of Per Cent of Disability Days§

Duration	Cases		Disability Days	
	Number	Percent of Total	Number	Percent of Total
Under 1 Week: 1 day	270	0.62	267	—[1]
Under 1 Week: 2 days	1,013	2.33	1,996	0.2
Under 1 Week: 3 days	1,586	3.65	4,707	0.4
Under 1 Week: 4 days	1,844	4.24	7,302	0.6
Under 1 Week: 5 days	2,088	4.80	10,344	0.9
Under 1 Week: 6 days	1,502	3.45	8,910	0.7
1 week and under 2 weeks	12,071	27.76	109,972	9.0
2 weeks and under 4 weeks	10,468	24.09	195,981	16.1
4 weeks and under 12 weeks	9,418	21.66	423,480	34.8
12 weeks and under 25 weeks	2,269	5.23	244,316	20.1
25 weeks and over	956	2.20	208,841	17.2
Total	43,485	100.03	1,216,116	100.0

[1] Less than one-tenth of 1 per cent.

§This table, presented here by the courtesy of the United States Bureau of Labor Statistics, furnishes, perhaps, for the first time, an accurate statement as to proportion of disability cases of specified duration among wage earners. The figures given herein will appear in an early report to be published by the above mentioned Governmental agency.

eral other factors which tend to cause discrepancies between the disability reported and the actual amount of sickness. These factors are principally of an administrative and psychological character. Malingering is frequently due as much to the dishonesty of the claimant as to the liberality or carelessness of the administrative methods used in the awarding of benefits. If the payment of benefits is made in a spirit of philanthropy or charity, as was found to be the case in one of the organizations studied, many a self-respecting legitimate claimant will refrain from applying for benefits. The record of illness of such persons will, therefore, be lost. Again, as was the case in another instance, if sick benefit payments are made carelessly and without proper investigations, the number of sick persons and the length of their disability periods will show a tendency to increase. The latter statement is not intended to reflect upon the personal character of the claimants; it is merely an endeavor to bring out as clearly as possible the "natural" defects of the figures presented in Table II as well as any of the figures showing the extent of disability or maintenance costs.

The service and information branch of the office of the Surgeon General announces that there are 730 commissioned vacancies in the Medical Corps, United States Army, and for purpose of filling them examinations of all eligible applicants will be held March 15 in the United States and its colonial possessions, including Panama Canal Zone, as well as in France, Germany, and Siberia.

SURVEY TO RESULT IN MEDICAL CENTERS

The United States Public Health Service is conducting an unusually extensive survey of school and home conditions of children in several sections of Missouri. This work has been undertaken at the request of the State Board of Health with Dr. C. P. Knight, of the United States Public Health Service, in charge, assisted by Dr. Lydia A. DeVilbiss, who formerly directed the department of child hygiene in Kansas. The survey is expected to result in medical supervision of schools.

SCHOOL AND HOSPITAL AT PEKING

The Rockefeller Foundation through its subsidiary, the China Medical Board, is building in the capital of China a modern medical school and hospital together with groups of houses for members of the teaching staff. The completed plant will include laboratories for anatomy, physiology, and chemistry, a special building for pathology, a 250-bed hospital, a private patient building with twenty-seven rooms, a large out-patient department, a hospital administration unit, a nurses' home, power and gas plants, and an animal house. The faculty residences, grouped in two walled areas or "compounds," are of fireproof construction, and are supplied with every modern convenience including pure water, electric light, and fuel gas. The buildings embody certain characteristic features of Chinese architecture. The main roofs and the pent roofs are covered with glazed green tile made in one of the Imperial tile factories. The eaves and porticoes are embellished with gaily painted decorations in red, blue,

Members of the construction group and teaching staff of the Peking Union Medical College assembled before a partly completed entrance of the new medical school being erected by the Rockefeller Foundation, through the China Medical Board.

green, and gold. The Chinese have already christened the group of buildings "The Green City." Three of the teaching laboratories were occupied October 1, 1919. It is expected that the entire plant will be completed by January 1, 1921.

THE SERVICE OF THE DISPENSARY*

A Report by the Public Health Committee of the New York Academy of Medicine, New York City.

A. Preface

Even if the hospitals of the country were adequate in number and equipment to take care of all patients requiring hospital care, the number of such patients would not serve as an index of the medical service necessary, and the neglect of dispensary care for ambulatory cases and for out-patient work would not only cripple the hospital activities, but would make inoperative one of the chief means of placing prevention as well as cure of disease within the reach of all classes of society.

The significance of the rapid growth of the dispensary, its importance in the administration of medical care, and its tendency to organize in the interest of better service to the masses all those specialties of medicine which would not otherwise be available, are attracting increasing attention, and the development of this form of service would seem to indicate that it is the function of the dispensary to cover the major portion of medical service. A survey of existing dispensaries and an estimate of their relative efficiency become essential to their supervision and standardization.

The study presented herewith of the dispensaries of New York City is perhaps the most intensive yet undertaken in this field.

I. The Growth of the Dispensary

The growth of the dispensary in the last twenty years has been phenomenal. While, according to the United States Bureau of the Census,[1] there were 154 dispensaries in the United States in 1904, the total number of dispensaries in the country at present is approximated at 3,000.[2]

In their annual report for 1918 the State Board of Charities of New York made the statement that "few of our social institutions are increasing in number and importance more rapidly than the dispensaries." In this state there were, in 1918, 213 dispensaries, of which 153 were in New York City. The increase in dispensary facilities has been due largely to the establishment of tuberculosis, dental, industrial, and other types of special clinics, and was occasioned chiefly by the extension of the public health movement. Table I, comparing the numbers of the several types of dispensaries in the state of New York in 1908 and 1918, shows how the relative percentage of the general dispensaries has decreased from 79 per cent to 53 per cent, while the tuberculosis, dental, and other special clinics have increased manifoldly in relative importance.

II. Dispensary Facilities in New York City

According to official figures, there are 153 dispensaries in New York City. In this number are included 21 tuberculosis, 8 dental, 10 eye, and 3 rabies clinics of the Department of Health, and the 6 school dental clinics maintained by the Children's Aid Society. Of the 105 dispensaries outside of the Health Department and School Dental Clinics, there are 65 out-patient departments of hospitals, 34 detached dispensaries, and 6 college dispensaries. In addition to the above mentioned clinics listed

TABLE I—Growth of Dispensaries in the State of New York†

	1918		1908	
	Number	Per cent of total	Number	Per cent of total
General	113	53	100	79
Tuberculosis	30	14	3	2
Dental	16	8	1	1
Other special	54	25	23	18
Total	213	100	127	100

†From the Annual Report of the State Board of Charities, 1918, p. 200.

TABLE II—Clinic Service in New York City

Department	No. of Institutions	No. of Sessions Weekly	No. of Hrs. Weekly	Per Cent of Total	No. of Evening Hrs. Weekly
Internal Medicine	59	374	1,078½	13.6	9
Surgical (including 3 fracture clinics)	58	398	879½	11.1	..
Pediatric	47	307	599	7.5	..
Baby Welfare Stations (D. of H.)	59	106	271½	3.4	..
Neurological	25	139	212½	2.7	13
Tuberculosis	31	174	362½	4.6	18
Lung	3	12	18	.2	..
Diseases of Digestive Tract	10	45	66½	.8	..
Cardiac	11	33	51½	.6	3
Rectal	7	23	28½	.4	..
Diabetic	2	4	8	.1	..
Eye	58	293	617½	7.8	9
Ear	52	275	486½	6.1	..
Nose	43	123	315½	3.9	9
Throat	54	254	430	5.4	9
Dental	35	190	520½	6.5	7½
Gynecological and Obstetrical	56	308	642	8.1	8
Pre-Natal	7	21	35	.4	..
Orthopedic (including Hernia and Chiropody)	23	115	222	2.8	15
Cancer	1	6	12	.1	..
Skin	28	128	241	3.0	..
Genito-Urinary	29	144	276½	3.5	24½
D. of H. Venereal (including 3 occupational)	15	88	208	2.6	50½
Syphilis	4	18	85	1.7	18
Phys.Therapy, Massage, X-ray and Electro-Therapy.	9	53	147	1.8	6
D. of H. Anti-Rabic	3	19	41	.5	..
‡Unclassified	4	30	67	.8	14
		3,680	7,932½		213½

‡Unclassified: 2 Vaccine; 1 Italian; 1 Clinic for Speech Defects.

*The first of a series of three articles on dispensary service which will appear in successive issues of Modern Medicine. "The Problem of Disease" will be discussed in May, and "Dispensary Patients" in the June issue.

1. "Benevolent Institutions 1904," Special Report of the United States Bureau of the Census, Washington, 1905, pp. 36-37.
2. Davis and Warner, "Dispensaries," The Macmillan Co., New York, 1918, p 37.

by the State Board of Charities, the Health Department maintains 12 venereal disease clinics—all but 2 advisory only—3 occupational clinics for the examination of food handlers prior to issuing licenses, and 60 baby welfare stations. There are several private agencies maintaining milk stations for children.

As seen from Table II, compiled on the basis of information received from the dispensaries, the dispensaries are open weekly for 7,932½ hours and hold 3,680 sessions per week, the average length of each session being more than two hours The number of evening clinics is comparatively very small. The total number of evening clinic hours amounts to 213½, or a little more than 2.5 per cent of the total number of clinic hours per week.

The largest number of clinic hours weekly is given by the departments of internal medicine,—1,078 hours weekly, or 13.6 per cent of the total clinic hours. The surgical clinics offer their facilities for 879½ hours weekly, or 11.1 per cent of the total number of clinic hours; and the pediatric clinics, exclusive of the baby welfare stations of the Health Department, are open 599 hours, or 7.5 per cent of the total time now given by the dispensaries each week. Gynecology, eye, dental, ear, throat, tuberculosis, nose, genito-urinary diseases, dermatology and syphilis, orthopedics, and neurology supply, in the order named, practically the whole of the remainder of the clinic facilities.

The magnitude of the dispensary service in New York City is perhaps best illustrated by the figures of the number of persons treated and the number of treatments given at the several institutions annually.

Table III, obtained through the courtesy of the State Board of Charities, shows that the average number of persons treated in the dispensaries of New York has been more than one and one-fourth millions annually for the last five years, and the number of treatments exceeded four millions annually, making an average of more than three treatments per person.

TABLE III—Dispensary Service in New York City, 1913-1918, Inclusive—New York City Boroughs

Number of Persons Treated in Dispensaries

Year	Manhattan	Brooklyn	Bronx Queens Richmond	Total New York City	Average No. of Visits
1913-1914	1,091,393	149,044	47,657	1,288,094	3.2
1914-1915	1,122,638	48,831	80,084	1,251,553	3.6
1915-1916*	917,187	139,819	57,882	1,114,888	2.9
1916-1917	1,050,635	187,302	90,118	1,328,055	3.2
1917-1918	982,516	177,943	83,893	1,244,352	3.2
Number of Treatments					
1913-1914	3,430,859	570,501	198,355	4,199,715	..
1914-1915	3,716,898	626,520	222,644	4,566,062	
1915-1916*	2,719,233	437,375	176,190	3,332,798	
1916-1917	3,440,727	621,922	256,122	4,318,771	..
1917-1918	3,196,124	650,525	250,205	4,096,854	..

*Nine months.

The number of persons treated in dispensaries, as shown by Table III, is considerably in excess of the actual number of persons using the dispensaries, because in the course of a year a large number of dispensary patients register more than once in the same dispensary for different conditions, and some in more than one dispensary for the same condition. As only several dispensaries publish in their annual reports the distribution of patients and of attendance by clinic departments, it was possible to obtain this information in but a fragmentary way. According to the available statistics, about 20 per cent of the new patients are referred to the departments of internal medicine (Table II) and a little more than 14 per cent of the total number of consultations are given in those departments; about 13 per cent of new patients are admitted to the departments of surgery, to which 16 per cent of the total visits to the dispensary are credited. About 11 per cent of the new patients come to the pediatric clinics, where more than 9 per cent of the total consultations in the dispensaries are recorded. The eye, ear, nose, and throat departments receive 22.9 per cent of the new patients and give 19 per cent of all the consultations. Gynecology and genito-urinary disease departments receive 5.5 per cent of the new patients, and record 10.3 per cent of the dispensary attendance. The other special departments receive the remainder of the patients. A similar clinic distribution of patients is found in dispensaries of other large cities.

The distribution of the patients among the several departments of the dispensaries is significant. It indicates that only one-fifth of the patients are taken care of in the department of internal medicine, that less than one-eighth of all the patients come to the departments of surgery, one-ninth of them to the departments of pediatrics, and the rest, or almost 58 per cent of patients, are distributed among the several specialties. In other words, 80 per cent of the dispensary patients come with complaints which are being taken care of in departments other than that of internal medicine. This is equivalent to saying that by a process of evolution conditioned by economic, medical, and public health forces, the dispensary has become an institution to which a large part of the wage earning class of our population resorts when in need of services of specialists, or of a special examination or treatment, which in the majority of instances they cannot obtain except at the dispensary.

The recognition of this condition calls for a reconsideration of the whole dispensary problem from the standpoints of economics, administrative policy, and the relation of the medical profession to the dispensary. Intimately bound up with any plan of reform of the existing practices that might be undertaken is the question of dispensary fees and that of "pay clinics."

III. The Dispensary Law

The New York Law defines a dispensary to be "any person, corporation, institution, association, or agent whose purpose it is, either independently or in connection with any other purpose, to furnish at any place or places, to persons non-resident therein, either gratuitously or for a compensation, determined without reference to the value of the thing furnished, medical or surgical advice or treatment, medicine or apparatus, provided, however, that the moneys used by and for the purposes of said dispensary shall be derived wholly or in part from trust funds, public moneys, or sources other than the individuals constituting said dispensary and the persons actually engaged in the distribution of charities of said dispensary." By this definition a dispensary continues to function legally as long as the fees charged do not bear any relation to the services rendered. As long as the dispensary gives services free to those who cannot pay, and as long as the physicians in the dispensary work without pay or for a purely nominal compensation, the dispensary fees, even if increased considerably, will still bear no relation to the value of the services rendered. There is one institution in this city devoted to the treatment of special conditions which charges an admission fee of one dollar in the out-patient department.

Even the so-called pay clinics, which are theoretically supposed to be self-supporting, do not as a rule include in their charges interest on the investment represented by the institution, or capital, corporation and other expenses, and therefore come within the legal definition of a dispensary.

It would be well to have a clear ruling on the matter by the State Board of Charities and, if need be, the existing law should be so amended as to make no difficulty whatsoever in the promotion of pay clinics, which are urgently needed. Under existing conditions those unable to pay the customary fees of specialists or to meet the expense of laboratory and x-ray examinations and of special treatment are compelled to resort to the dispensaries, although they may be in a position and willing to defray a part of the costs prevailing in private practice.

It is a misdemeanor to obtain medical or surgical treatment in a dispensary under false representation, and it was with the intention to facilitate legal action against violation of this law that patients who looked as if they were able to pay a physician were required to sign a "representation card" on which certain statements about their occupation, income, and ability to pay for the services of a physician had to be made and signed by the applicant. Because of the numbers to be admitted, or for other reasons, few dispensaries made effective use of this card[3] and the requirement for the "representation card" was omitted from the revised rules of the State Board of Charities. Although the law has been on the statute books since April 18, 1899, no case of abuse of the dispensary has been brought to court.

In spite of the rapid growth of the dispensaries throughout the country, there are very few states which have adequate laws concerning the dispensaries. The licensing of dispensaries and the inspection of dispensaries, even if required, are, in some states, not carried out on account of inadequate appropriations for the purpose.

The most comprehensive laws on the subject are those of New York and of Massachusetts. Under the Massachusetts Law, which went into effect on April 2, 1918, the licensing of all dispensaries, except the state and municipal, is placed in the State Department of Health, and the Public Health Council of the department is charged with making rules and regulations for the conduct of dispensaries. Likewise, the State Health Department has the authority to visit and inspect any dispensary at any time in order to ascertain whether it is licensed and conducted in compliance with the law and rules and regulations established.

The Control of Dispensaries

The New York Law, enacted in April, 1899, places the licensing and control of dispensaries in the hands of the State Board of Charities. The Board has the power "to make rules and regulations, alter or amend the same, in accordance with which all dispensaries shall furnish to applicants, medical or surgical relief, advice or treatment; medicine, or apparatus." The Board may at any time inspect the dispensaries to ascertain if they are conducted in compliance with the law and the regulations of the Board. The Board has the right to revoke a license.

Violations of the law, or of the rules and regulations of the Board, are deemed to be a misdemeanor.[4]

The rules were amended in June, 1918, and became effective on July 1 of that year. Under the present rules the admission of the patient is left to the discretion of the admitting officer, who is required to question each patient about his financial status, and if an investigation is made, the result of it must be filed among the permanent records of the dispensary. The exemptions from this provision have been extended. As the rule now stands, the groups of patients that may use the dispensary without regard to their financial status are: (1) Emergency cases; (2) patients who are received in dispensaries connected with medical schools and are selected for use in clinical instruction; and (3) patients treated for communicable diseases. This last applies chiefly to tuberculosis and the venereal diseases because of the public health aspect involved in the control and treatment of these maladies.

The amended rules further provide that the license certificate of the dispensary must be posted in the waiting room; that on discharge of a patient "a record shall be made of the results of treatment as far as they can be ascertained"; and that a record of the time of arrival and of departure of each physician be kept at each institution. The other changes in the rules refer to the presence of a woman at obstetrical and gynecological examinations, and to the provision of a nursing service in all dispensaries receiving and treating cases of pulmonary tuberculosis.

The ratings given to the dispensaries by the State Board of Charities, and the shortcomings pointed out on inspections made by the agents of the Board, stimulate the institutions to ameliorate existing conditions. The inspections, however, have often been of a perfunctory character and have not commanded the degree of attention on the part of the institutions which they would if made by competent investigators. Conditions have changed for the better in that respect, and it is to be desired that the State Board of Charities designate for this task of inspection a corps of well trained and well compensated officers, whose inspections would be thorough and their suggestions based on an understanding of proper standards of dispensary equipment and procedure. The present practice of the State Civil Service Commission in not differentiating among the various kinds of inspections which the State Board of Charities has to perform makes it difficult for the Board of Charities to obtain inspectors trained in the understanding of hospital problems and procedure, as the prescribed qualifications are the same for inspection of all kinds.

IV. Responsibilities of Dispensaries

It is impossible to obtain exact figures as to the amount of investment the dispensaries of New York City represent. It undoubtedly amounts to many millions. Likewise, no exact information is available with regard to the total cost of administration and maintenance of our dispensaries. The United Hospital Fund of New York gives statistics of the expenses of thirty-four dispensaries. The total reported expenditures for the year 1918 amounted to approximately $700,000. On this basis a conservative estimate of the expenses of all the dispensaries would be at least two million dollars per annum. Institutions expending such considerable sums of public or corporate funds have definite responsibilities. These responsibilities are toward the community which supports the institution, as well as toward the patient who should be assured efficient medical treatment, and toward the physicians and other workers in the dispensary, who should be afforded opportunity for training and for advancement in recogni-

3. Annual Report of the New York State Board of Charities, 1918, p. 202.

4. The law relating to dispensaries constitutes Article XV, Chapter 55 of the Consolidated Laws of the State of New York, paragraphs 290 to 296, inclusive.

tion of their services. The responsibilities of the dispensaries have in many instances not been fully realized, nor have their opportunities that lie in the fields of prevention of disease as well as in the amelioration of social conditions, been appreciated, although the possibilities along these lines were pointed out half a century ago.

In May, 1868, the *New York Evening Post* published an account of the dispensaries in New York City, giving a brief history of their development, management, and economic value, which concluded in the following manner:

"The dispensaries do their greatest service in the prevention of diseases. The patients they care for form but a small part of their annual reports; those they assist in escaping a long and lingering sickness are by far the greater part of the whole number treated. The promptness with which aid reaches the sick poor is the crowning glory of the system. Disease is treated in its incipient stages, and death held at bay beyond the threshold of many a crowded tenement by the immediate attention patients are able to get through this system. . . . The dispensaries are boards of health in miniature averting thousands of physical ills, quietly and unostentatiously, that could never be reached in any other way. They were organized to benefit the poor; but, like all successful efforts to improve the condition of a single class, it has been found that their blessings fall, in a different form, upon all other classes."

At the time this was written there were in New York City but few dispensaries, and their work in the field of disease prevention lay chiefly in vaccinations against smallpox. With the increased opportunities at command at the present time in the field of both preventive and curative medicine, the responsibilities of the dispensaries have increased many fold. They can become institutions for efficient medical diagnosis and treatment, public health centers in their respective neighborhoods, and can afford valuable training facilities to physicians, nurses, and social service workers.

V. The Scope of the Study

It was the recognition of the prevailing failure on the part of the dispensaries to develop to the fullest extent their medical and educational resources—a condition which was accentuated during the period of the war—that prompted the Public Health Committee of the New York Academy of Medicine to undertake the present study.

It was the aim of the Committee to present as accurate data as could be secured relating to the medical and social service work in the dispensaries, the existing facilities in equipment and personnel, the prevailing methods of organization and administration, as well as the financial resources of the institutions; and on the basis of the ascertained facts to suggest methods of rendering the work of the dispensaries more efficient and valuable.

VI. The Method of the Study

The available information concerning dispensaries was thoroughly examined prior to undertaking the survey in July, 1918.

The excellent work of the Associated Out-Patient Clinics of the City of New York has been of great assistance in the present study. It was unnecessary for the Committee to undertake the formulation of standards of equipment and organization of the various branches of dispensary service, because this had been done in great detail by the Association, which also has contributed greatly toward a proper understanding of the underlying problems of dispensary management.

It was also thought unnecessary to include in the survey all the institutions of the city. An attempt to do this would have prolonged unduly the period of the inquiry, and the information gathered, although greater in amount, would not have added materially to the comprehension of dispensary conditions. It was therefore considered advisable to limit the study to about forty-five of the most important institutions, doing the bulk of the dispensary work of the city and representing the various classes of dispensaries so far as affiliation and type, size, and excellence of service are concerned.

The study is aimed to be intensive rather than extensive, and the Committee feel that by the method chosen they have been enabled to elicit facts in a way that has never been attempted before, in this city or elsewhere.

The study resolves itself into six major parts: (1) Organization and administration of dispensaries; (2) medical work; (3) social service; (4) finance and accounting; (5) economic status of patients; and (6) the relation of the dispensary to the problem of disease in the city.

Organization and Administration

Data bearing on the following subjects have been analyzed under this heading: the type of dispensary organization and affiliation; the methods of appointment of physicians, their compensation, and the relation of dispensary physicians to the hospital; the admission and distribution of patients; the arrangement of dispensary rooms; the equipment of dispensaries, including facilities for laboratory and x-ray work, as well as for special therapy; the keeping and filing of records; the cleanliness of the dispensary; courtesy on the part of employees, and similar matters pertaining to organization and administration.

Medical Work

The study of medical work was made entirely on the basis of records. This was the only objective manner in which it could be made. Such a method has its recognized shortcomings, but is of distinct value for comparative purposes, particularly when it is based, as is this, on thousands of records of not only the average run of cases, but, also, of selected diseases of a chronic type which require a protracted course of treatment. As this part of the study was made in 1918, it was thought that utilization of current records would lay the findings open to the criticism that the records of 1918 did not reflect the character of the work as carried on under normal conditions. To obviate this possible criticism records were selected pertaining to the first three months of 1917, that is, prior to our entrance into the war; in addition, a certain number of records were taken for the same months of 1918, in order that by a comparison the difference between a normal and abnormal year could be ascertained. Special studies were made of the tuberculosis and venereal disease clinics because of the particular health aspect involved.

Social Service

The procedure in referring patients to the social service departments and the technic of social service work has been studied in detail; likewise the organization and needs of the social service departments. Recognizing the importance of this new branch of dispensary service, a great deal of time and attention have been given to this part of the study.

Finance and Accounting

An expert in bookkeeping was engaged to make a study of the prevailing methods of dispensary accounting, which

in a very large number of instances was found to be carried on in an inaccurate and unscientific manner.

Economic Status of Patients

A large number of dispensary patients were interviewed at the dispensary, and one-third of them visited later in their homes and reasons for applying to dispensaries were ascertained, as well as their financial resources. The information gathered has been tabulated so as to show the weekly income of the families on a unit basis and by nationalities. The duration and mode of treatment of various conditions prior to applying to the dispensary were ascertained, as well as the degree of incapacity at time of such application of dispensary patients, their occupation and their home conditions.

Relation of Dispensary to Problem of Disease

Analysis of the economic status of dispensary patients was supplemented by a larger study bearing on relation of the prevalence of illness to the type of medical service which is employed by the several economic and racial groups of our city population. In order to ascertain this information a house-to-house canvass of selected blocks in the various parts of the city was made; 2,023 families were visited. Information concerning the amount of sickness was secured, not only during the time of the visits, which were made in January, February, and March, 1919, but also for the entire year 1918.

The investigators were requested to note in each instance whether the heads of the families visited were able to speak the English language and how long they had lived in the United States, with a view of correlating the type of medical service sought to the ability to speak English and to the degree of adaptation to American life.

LAW FOR THE DOCTOR

By LESLIE CHILDS, Attorney at Law, Indianapolis, Indiana*

The Application of a Domestic Remedy for a Fee as Practising Medicine.

One Joseph Huff, a farmer, was indicted under the Kansas statute for the regulation of the practice of medicine, for practising medicine without a license. Huff was convicted in the lower court and prosecuted an appeal to the Supreme court. The case is entitled State of Kansas *vs.* Joseph Huff, 96 Kan. 632, and the facts upon which the indictment was predicated were in substance as follows:

Huff claimed that he had discovered a remedy for cancer. This alleged remedy was manufactured by him from vegetables grown on his farm, and at the time of his trial he stated that he had treated from fifty to seventy-five different patients. One of the patients was a Mrs. Stewart, who was named in the indictment.

The evidence tended to show that he treated Mrs. Stewart under a contract by the terms of which he was to receive one hundred dollars. He had received fifty dollars of this amount when indicted, and was to have been paid the balance when a cure had been effected. In describing his method of treatment the defendant said:

"I take a little stick and get a little medicine on it and put it on the cancer, the diseased part, and that works from fifteen minutes to half an hour, until it works the strength out of the medicine, and I then clean that off and apply it again." The report fails to show how efficacious this treatment was, and is taken up with a discussion of the question as to whether, under the Kansas act, this application of a domestic remedy for a fee amounted to a violation of the statute in question.

The section of the act under which the indictment was laid reads in part as follows: ". . . any person who shall practise medicine . . . in the state of Kansas without having received and recorded a certificate under the provision of this Act, . . . shall be deemed guilty of a misdemeanor.

"Any person shall be regarded as practising medicine and surgery, within the meaning of this Act, who shall prescribe, or who shall recommend for a fee, for the like use, of any drug or medicine. . . . This Act shall not apply to any commissioned medical officer of the United States Army, Navy, or Marine service, . . . nor shall anything in this Act apply to the administration of domestic medicines, nor to prohibit gratuitous services."

In the defendant's appeal to the Supreme Court, he assigned a number of technical errors, alleged to have been committed in the lower Court, which were over-ruled. The most important error assigned, in so far as this article is concerned, was one on an instruction given by the lower Court in respect to the scope of the term, "administration of domestic medicines."

The lower Court instructed the jury that, "the term 'domestic medicine,' as used in this Law, means medicine as practised by unprofessional persons in their own families or households." The Supreme Court reviewed the authorities at length to determine whether the defendant could have been prejudiced by this instruction. In conclusion it was stated:

"A non-professional person is permitted, under the Law, to administer domestic medicines, but not to take pay for recommending their use. The theory of the state is that one who proposes to ask and receive compensation for advice as to the use of medicines thereby holds himself out as possessed of special and peculiar information on the subject, and that it is the province of the state to see that he possesses it, or, in default of proof thereof, to prevent his making the unfounded claim a source of revenue. . . . Under the defendant's own statement, he was guilty of the offense charged against him, if for a fee he recommended the use of his medicine as a remedy for cancer, whether it was a 'domestic medicine' or not."

Holding that under the Kansas Act it was not material whether the medicine was a domestic medicine or not, where it had been prescribed for a fee. For, granting it to be a domestic medicine, that fact would not constitute a defense. The judgment of conviction rendered in the lower court was thereupon affirmed.

*The eleventh of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

TRACHOMA PROBLEM IN OHIO

As a rule, health officers do not consider that treatment is not a proper function of the health department, but this they believe does not apply to trachoma.

Trachoma is a dangerous, contagious disease of the eyes which in early cases may be easily cured by simple operative procedures. In order to discover cases when they can be cured and before they have transmitted the disease to others, extensive surveys must be made.

The reported cases in Ohio number 2,037. Surveys of eye conditions among school children have been made and others are planned. The staff of the State Department of Health now includes a chief, Bureau of Trachoma Clinics, and a trachoma nurse. It is expected that the special trachoma campaign undertaken with the help of the United States Public Health Service will within a few years wipe out the menace in Ohio.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M. OLMSTED, R. N., *Editor*

SOME FACTS ABOUT PUBLIC HEALTH NURSING

MOST phases of public health originate with the medical profession. Some have been given a decided impetus by being correctly interpreted to the public by a group of messengers known as public health nurses.

Dr. C.-E. A. Winslow has said, "The nurse is the central figure in the modern public health campaign. The main object of the campaign is the training of the individual in laws of personal hygiene and public sanitation, and it is the nurse who brings those laws in effective form to the factory and to the tenement dwelling where they must be applied."

Until now, medical science has found no better way to speak to people, no better point of attack, than through the nurse whose entrance into the home is acceptable and desired. There is no greater factor in the control of disease than the care and instruction given by the nurse to so many individuals.

Public Health Nurse Qualifications

The public health nurse must be a graduate of a recognized hospital. She should have had some work in public health during her hospital training or additional training after graduation. The usual hospital course of two or three years does not fit her to cope with the social and economic problems which constitute a large part of the daily responsibility of the public health nurse. She lacks fundamental knowledge of health administration and social service without this special training, and it is difficult for her to do practical work without the apparatus to which she has become accustomed in the hospital.

Because of her entrance into so many types of homes, where the friendliness and receptivity on the part of the families afford her a wonderful opportunity to teach, the public health nurse must possess a distinct personality, one that is able to successfully meet any and all demands of her profession.

History of Public Health Nursing

The history of public health nursing is briefly summarized in a leaflet recently distributed by the National Organization for Public Health Nursing, as follows:

"The first public health nurses were the nuns and sisters of the early Church. When the Council of Trent ordered that all communities of women be enclosed, visiting nurse work was given up. St. Vincent de Paul, in the middle of the seventeenth century, founded the order of the Sisters of Charity for visiting nurses. 'Nuns,' he said, 'must needs have a cloister, but the Sister of Charity must go everywhere—her monastery the house of the sick, her cell the chamber of suffering, her cloister the streets of the city.'"

This work was so well founded that it exists to this day, the Sisters of Charity conducting training schools for nurses and doing visiting nursing in the homes of the poor in some of the cities of the Old World.

Visiting Nursing Societies were introduced in Boston, Philadelphia, and Chicago, 1886-09. The first municipal nurse employed in Los Angeles entered upon her duties in 1898. School nursing was started in New York in 1902, and rural nursing was begun by the Red Cross in 1912. England was the first country to develop public health nursing, and South Africa, Australia, and Canada have introduced this service widely. The war has introduced public health nursing, as we know it, in Italy and France. In Cuba, a corps of visiting sanitary nurses constitute a special service under the Cuban Department of Health, while in Japan public health nursing is being begun by a Japanese woman who came to America for the purpose of taking her training in the Woman's Hospital and in the Henry Street Settlement of New York.

This new but rapidly developing type of nursing started with bedside care of the sick poor in homes. It now continues to nurse the sick, but it is constantly striving to prevent further sickness and to promote general well-being. There are over 2,537 associations doing this kind of work, and over 6,000 nurses engaged in it.

Many nurses are specializing in infant welfare, tuberculosis, industrial, maternity, mental, school, or social work, but the nurse working alone in a small community or a rural section usually combines all these phases of public health nursing. They are employed by boards of health, philanthropic organizations, school boards, county boards of supervisors, industries, insurance companies, and many other agencies. The ultimate goal should be to make public health nursing a public charge. It is false and undemocratic to coddle it, beyond its demonstration period, merely for the sake of protecting it from politics. There are many ways in which the standards which have been built up so painstakingly may be guarded.

Public health nurses are known as community nurses, county nurses, visiting nurses, district nurses, teachers of hygiene, industrial welfare, or social service workers, often taking their name from the organization supporting the work, as, tuberculosis or infant welfare work.

What Public Health Nurses Are Doing

1. *The Visiting Nurse.*—Statistics show that only 10 per cent of our sick are cared for in hospitals, 90 per cent remaining in their homes. Since sickness causes 75 per cent of the poverty in existence, only a small proportion of people are able to employ private nurses. Every year visiting nurses are caring for larger numbers of sick in their homes, and in this manner are materially reducing poverty.

A recent study of the Metropolitan Life Insurance Company, covering five years previous and five years subsequent to the introduction of the service, proved, that, in the million cases studied, visiting nurses had reduced the mortality rate 12.8 per cent, bringing about a tremendous saving in life, a shortening of periods of illness and suffering, and an increased earning capacity.

2. *The Infant Welfare Nurse.*—The infant welfare nurse is truly a saver of lives. By systematically visiting the babies of her community or district, by helping with care and instruction when they are sick, and by constant vigil and advice when they are well, the infant welfare nurse undoubtedly lowers the death rate and lessens the awful wastage from crippling and maiming of young life by illness.

She works in the home, in clinics, in milk stations, in health stations, and with boards of health. Through conferences, through weighing and measuring babies, through mothers' meetings, and through talks to clubs and Little Mothers' Leagues in the schools, she prepares for the coming generations.

Infant Care Lessens Mortality

New York City, in ten years, reduced its infant mortality from 186 deaths per 1,000 babies to 86, largely through the work of the nurses. Dr. C.-E. A. Winslow says, "The proportion of young babies that will die depends almost wholly on the amount their mothers know about infant care. In Russia, one baby in every four dies before completing the first year of life. The Russian mothers love their babies, but the 'mother instinct' does not teach them to feed them only on mother's milk or clean, pasteurized cow's milk and so they give those babies other foods and the babies are killed by summer diarrhea. In the United States, about one baby in eight dies before reaching its first birthday. That is better than the Russian record; but in New Zealand only one baby out of twenty dies in the first year of life. The New Zealand mothers are no more devoted than ours. They are no more highly educated nor any wiser in most matters, but they have learned more about infant care."

We have lately realized that the importance of the period between infancy and school age has, for a good many years, been overlooked by public health nurses. But now we find that infant welfare nurses have, as a rule, throughout the country, undertaken to care for children up to the age of five years. They are doing much to prevent the terrible toll of child life during the period when children are most susceptible to communicable diseases; when their bones are soft and easily bent; when stomach trouble so often occurs as a result of improper feeding and the decay of the first teeth.

3. *The Prenatal and Obstetrical Nurse.*—The prenatal and obstetrical nurse often continues her work with the infant welfare nursing. She visits and advises mothers before the birth of the baby and sees that the mother gets the proper prenatal and post-partum care.

Recently, special studies have been made in connection with the Federal Children's Bureau in regard to the number of deaths from childbirth. Fifteen thousand mothers die yearly in the United States. The death rate from childbirth between the ages of 15 and 45 years was greater than the mortality from any disease, with the exception of tuberculosis. A recent study of this type of

nursing in Boston, with 731 cases, shows that with proper medical and nursing supervision before birth the death rate of babies during the first year of life has been cut in half and, during the second year, reduced by one-third. Still-births have been decreased by one-half, as well as maternal mortality.

4. *The School Nurse.*—The school nurse assists the school doctor in his medical inspection of children. She carries his advice to the parents in the homes and sees that treatment is secured. She does much to prevent the spread of disease by teaching the children personal hygiene. She advises the mother of the undernourished child. By frequent inspection of the children, she discovers decayed teeth, enlarged tonsils, adenoids, unclean heads, and other conditions often found which are detrimental to good health, good spirits, and good school work.

5. *Hospital Social Service Nurse.*—The medical social service nurse forms the connecting link between the hospital or dispensary and the home. By visiting the patient in his home after hospital or dispensary treatment she can interpret the doctor's orders so as to secure the desired results. Very often she is able to remedy social conditions which have caused the illness and might prevent convalescence and recovery. Frequently she finds occupation for the discharged patient and insures the proper care of children. This work is of paramount importance at the present time, when the high cost of living is causing so much illness and distress in homes of the poor, and even of the middle class.

6. *The Industrial Nurse.*—It has been said that every day in the year 2 per cent of all workers are incapacitated for work by illness. The industrial nurse attends to minor accidents and injuries incurred by the employees during the day's work.

She cooperates with the employers and employees to establish the best possible conditions —good lighting, ventilation, work hours, meal hours, and recreational facilities. She endeavors to have good food supplied the employees at reasonable prices. She visits the employees to give them nursing care when they are ill. She endeavors to bring about sanitary living conditions and a friendly community spirit. The industrial nurse has made a place for herself in factory, store, mine, and mill.

7. *The Mental Nurse.*—The field of mental nursing is becoming very important. The problem of mental disease and defect is being met by a campaign of education of the public by the physicians, the nurses, and social workers.

Many nurses who went abroad to care for psychoneurotic and other mental and nervous conditions are returning prepared to take up the Social Service work so necessary to our mental and nervous hospitals. All patients discharged from state mental hospitals should be followed up by a psychiatric social service worker. Nurses are assisting these patients during their period of readjustment, often preventing recurrence.

Public health nurses are doing much to promote sound mental health as well as sound physical health. Their knowledge of symptoms enables them to secure cases in the early stages, thus preventing actual breakdowns.

8. *The Tuberculosis Nurse.*—Public health nurses often specialize in caring for suspected and actual cases of tuberculosis and those who have been exposed to the disease, but the inherent nature of the work necessitates other kinds of nursing for preventive purposes, such as infant welfare, pre-school, and school nursing, in order to bring the case to the attention of the family and physician and secure treatment for the patient in the earliest stage of the disease, while there is yet opportunity for a cure.

The Tuberculosis Nurse assists the doctor at clinics to which she has persuaded suspected cases and those exposed to the disease to come. She carries into the homes instruction and advice and urges the close following of the doctor's orders. She gives nursing care in the home or arranges to have the patient cared for in a hospital, protecting the rest of the family in all possible ways.

9. *The Rural Nurse.*—The nurse working in a rural section must usually be, besides a nurse, a teacher of health and a lecturer. She is more often than not the only social worker in the county. She visits the mothers' pension and other similar cases, the county poor, the almshouse, and the jail.

Her greatest effort must be centered on the prevention of disease. She visits all the little rural schools, where she is usually responsible for the inspection of the children and the notifying of parents concerning physical defects found. She instructs the pregnant women. She watches the growing babies, and the cases of tuberculosis.

Whenever and wherever possible she gives to school children, Ladies' Aids, and county clubs, the short talks and demonstrations of home nursing, health hints, and rural sanitation, so needed and desired by rural mothers.

In succeeding numbers of MODERN MEDICINE, the editor of this department will publish longer,

illustrated articles on all of the above types of public health nursing. These articles will be written by nurses of recognized authority in their special fields. EDITOR.

CAN YOU AFFORD TO MISS IT?

THE First Biennial Convention of the National Organization for Public Health Nursing is to be held this year at Atlanta, Ga., April 12-17. A glance at the tentative schedule, however, shows that the week's program of joint meetings with the American Nursing Association and the League of Nursing Education makes it necessary to arrange for section meetings to take place April 9 and 10, the two days immediately preceding the convention.

At these meetings it is planned to organize formal sections of Industrial Nursing, School Work, and Infant Welfare, adopting at the same time their own by-laws, and electing officers. The object of these sections is the formulation and maintenance of high standards for nursing service in these three fields of public health work.

As this convention will be of special interest to all groups of nurses, private, institutional, and public health, announcement of the meeting is made at an early date, in order that hospital boards, Visiting Nurse Associations, and public health officers may have full time to arrange to send as many delegates as possible, that they may bring back to the other nurses a message of inspiration and encouragement from the meeting.

WHY A PUBLIC HEALTH NURSE?

BY GERTRUDE M. RINES, R.N., STATE SUPERVISING NURSE OF SOUTH DAKOTA, ARMOUR, S. D.

Public Health is an indispensable asset in the progress of any nation, and its attainment an object of the first magnitude. The more protection a people are offered, the more rapidly do they advance in civilization, learning, and culture; and the ravages and misery from catastrophe and pestilence will be correspondingly less. This not only applies to the masses, but to the individual. We have read and discussed and also taken steps toward bettering conditions in the large cities, but as yet very little has been done to insure better health conditions in the urban and rural districts.

Fig. 1. The nurse is teaching the mother how to protect the rest of the family from influenza through the use of the cornucopia in which to receive the papers used for the sputum of the patient.

In the past the health of the people in rural communities has not been as good as it should be. The majority of country people think as their life is rather secluded and so much in the open they cannot help but keep well. This sort of life does contribute toward the health of people, but there are other things to be considered.

Results of the physical examination of draftees in the United States Army show that the conditions of the men who came from the rural districts present a higher percentage of physical defects than do city boys.

It is also to be noted while we are considering the conditions found among the boys in the United States Army, that all of these boys are in the prime of life, and that they naturally are better qualified physically than people of any other age group.

When it is realized that the United States Army struck out every third man because of physical defects, it means that at least one-third of the people are physically defective. The majority of defects found by the United States Army have been traced back and found to be existent in the children of today. This was corroborated in one of the counties of South Dakota during the past month when the physician and public health nurse, after examination of a group of children, found defective vision, hearing, teeth, throat, and malnutrition—which is one of the greatest causes of tuberculosis, flatfootedness, and weak hearts—to exist in similar proportion as they did in men examined for army service.

The efficiency of a nation depends largely upon the health of its people. As Emerson has said, "The first wealth is health." It is utterly impossible for any individual, state, or nation to accomplish really great things without good health; for

what affects one individual comes in time to affect many, and it follows that community health work is not altogether a national problem, but a community and individual responsibility.

Health education should begin in childhood. If all parents and teachers were wise in regard

Fig. 2. The County Nurse Law has made it possible to bring to the bedside of the sick child at home the safety afforded by daily scientific care.

to health matters, it would not be necessary to bring into a community or school a specialized health worker; but very few people are familiar with the right kind of health work needed for the public.

Health Factors Studied

The public health nurse has been doing work in the larger cities for years, visiting the sick in their homes, giving general bedside care, and visiting the schools. Wherever it is possible, the nurse secures the services of a physician to help with the physical examination of school children; but many times she is obliged to carry on this examination herself. She examines the condition of school buildings, outhouses, and general sanitary conditions.

One of the biggest fields for the community nurse is the saving of babies' lives, and it is here, perhaps, that the mother needs her most. The visiting or public health nurse has proved herself the most efficient agent for the all important work of locating and looking after cases of tuberculosis in any community.

The whole trend of modern medical science is toward the prevention of disease, and the Public Health Nurse is regarded by medical science as the most competent single agent in this work of interesting the public in health education; for, after all, the prevention of an ill is much greater than its cure, and the greatest thing that is being accomplished today in a scientific way is teaching people how to live.

Through the cooperation of the County Health Officer, the County Public Health Nurse can help trace the origin of communicable diseases, and particularly tuberculosis, which is our most serious national problem.

Smallpox, which exists in nearly every county in South Dakota, is increasing and not decreasing, because of the indifference and ignorance of the people as a whole. At one time many of these cases were of a malignant type, and the mortality rate high; but since the disease is now of a milder type, people do not fear it and allow it to continue ignoring the fact that even in a mild form it invariably leaves complications. Smallpox or any other communicable disease existing in a community for any length of time, is a hindrance to the progress and efficiency of that community, and the public health nurse becomes absolutely necessary in a community to help suppress communicable diseases.

In 1915 the first public health nurse came to South Dakota to spend a month or two in several counties where an adequate number of Red Cross seals were sold in order to pay her salary. The author was the fourth public health nurse in the state, which at the present time has twenty-six public health nurses. Some are county nurses supported by county boards of commissioners, city school nurses supported by boards of education, and some are being supported by Red Cross Chapters. Sixteen of these services were inaugurated by the Red Cross Seal Commission of South Dakota. At the present time there are at least thirty counties on the waiting list for a nurse.

Fig. 3. In the Child Welfare work precision is emphasized by the nurse, and actual demonstration made in the preparation and handling of the food for the baby.

Surrounding states, Iowa, Wisconsin, and Illi-

nois, have public health nurses in nearly every county. In 1919 health laws passed the legislature in seven states, making physical education, training, and examination of school children compulsory.

Health Service Made Permanent

South Dakota has a County Nurse Law, passed at the last legislature, which gives county commissioners the right to appropriate money for a county nurse and make the work permanent in the county. Several counties have done this and are so pleased with the work the County Nurse is doing that they are now wondering how they got along without her. It is no longer a question of whether a county wants a nurse, but how soon can they get one.

The majority of health work in the schools should be supervised by the public health nurse. Modern Health Crusade work, which is a system of health chores, has been introduced into thousands of elementary schools for the primary purpose of forming good health habits among the children, enlisting children in community service, and controlling preventable diseases.

An eminent physician in a large children's hospital says that the Modern Health Crusade work is the greatest institution for the health of children he has ever witnessed. It not only educates them in proper health living, but forms permanent health habits. "If you want something to last one hundred years, plant a tree. If you want something to last one thousand years, plant a habit in a child, as this habit will be handed down from generation to generation."

In one room in a small city school in the state, 20 per cent of the pupils slept in homes where windows were never opened at night. Many of these children were among the poorest in school work. After following the Crusade work for two weeks, the last child reported to his teacher that his parents permitted him to sleep with his window open. Another child, one of a family of seven, who has been sleeping in a closed attic, by persistent efforts succeeded in getting his father to cut a hole in the room and put in a window.

Another family who had not been getting milk for their children, are reported as using milk daily since finding the children are all undernourished.

Due to physical examinations and health records taken and kept by the superintendent of schools and public health nurse, children become very enthusiastic over all phases of health work, particularly the Crusade work, and are becoming very intelligent in right living.

Nearly all of this work can be supervised by a public health nurse. Health work in the school is not a passing fad. The conservation of the child, like that of world's peace, must be on the mind of all humanitarian people. The child of today must be viewed as the raw material of a new state, the school as the nursery of the nation. To conserve this raw material is as logical a function of the state as to conserve the natural resources of gold, coal, and agriculture.

COORDINATION IN PUBLIC HEALTH NURSING ACTIVITIES

AN AGREEMENT BETWEEN THE AMERICAN RED CROSS, THE NATIONAL TUBERCULOSIS ASSOCIATION, AND THE NATIONAL ORGANIZATION FOR PUBLIC HEALTH NURSING, FOR THE PROMOTION OF PUBLIC HEALTH NURSING.

Foreword.—The Red Cross and the National Tuberculosis Association, through their division and state organizations, being the organizations probably administering the largest number of public health nursing services, and the National Organization for Public Health Nursing, as the voluntary body representing all types of public health nursing, necessarily have many interests and problems in common. Therefore, they seek to supplement each other by utilizing the facilities of each in common as far as possible and by joining forces in undertakings in which it is advantageous to do so. To accomplish this it is necessary that the functions of each organization and the lines of cooperation be clearly defined and future lines of cooperation be, so far as possible, anticipated. These three organizations, through their accredited representatives in conference assembled in Washington, D. C., December 5, 1919, hereby define what each organization considers to be its functions in the field of public health nursing, and enter into an agreement as to methods of performing its functions by means of coordination and cooperation.

The American Red Cross

Definition of Functions.—The functions of the Bureau of Public Health Nursing are:

1. Organization and administration of public health nursing services under the entire or partial direction of Red Cross Chapters through the machinery of the division and state staffs and in cooperation with state departments of health.
2. Education of the Chapters in the principles and practice of public health nursing in order to prepare them to administer such work with the maximum of intelligence and understanding and to the community's greatest advantage.
3. Constant support and guidance of public health nurses in Red Cross service and provision of all educational and informative material needed by them in order to assist them in understanding and meeting rural problems and in organizing and conducting their work to the best advantage.
4. Stimulation of supply of public health nurses through scholarship funds, through financial assistance where necessary for public health courses, and through efforts to interest student nurses and graduate nurses.
5. Research work in the field of practice through analytical studies of various typical and atypical pieces of work for the purpose of determining standard methods of organization, practice, and technic, and for dis-

covering data relating to various problems such as cost of service, variety of personnel required, etc.

6. Conducting demonstrations or experiments in public health nursing by request or as need arises.

The National Tuberculosis Association

Definition of Functions.—The general functions of the National Tuberculosis Association in the public health nursing field are:

1. To act as a clearing house of information about tuberculosis.
2. To suggest policies and programs to its constituent groups.
3. To stimulate the adoption of such methods of teaching tuberculosis, that nurses in training schools shall be made as familiar with this disease as they are with many other diseases which are not so widely distributed.

The National Tuberculosis Association considers that the employment of public health nurses by state and local tuberculosis associations should be for the following purposes:

1. The making of surveys and the demonstration of local needs.
2. Furnishing tuberculosis and public health nursing to communities until such time as the local public authorities are able and willing to assume its support.
3. Staffing of clinics and dispensaries for the diagnosis and treatment of tuberculosis.
4. Follow-up service for the sanatoriums, preventoriums, and open-air schools.
5. Work in the schools with the consent of proper authorities to introduce and supervise the activities of the Modern Health Crusade.
6. As Executive Secretary of state and local associations when such associations so desire.

National Organization for Public Health Nursing

Definition of Functions.—The National Organization seeks, through the following measures, to develop and support standards of public health nursing:

I.—*Educational.*

1. Assisting in the organization and improvement of post-graduate courses in public health nursing.
2. Assisting in the production of more public health nursing teachers through special scholarship fund.
3. Encouraging introduction of instruction in subjects relating to public health nursing and field work into the curricula of qualified training schools.
4. Special institutes for public health nurses already in the field.
5. Circulating package library, advisory service to libraries concerning public health nursing literature, and bibliographies.
6. Public Health Nurse, monthly magazine.

II.—*Recruiting.*

1. Encouraging graduate and student nurses to enter public health nursing.
2. Encouraging high school and college students to enter nursing and to prepare through pre-professional courses. This Organization has proposed that this be continued in cooperation with the other national associations.

III.—*Employment.* Maintenance of a limited employment service which could be developed into a national employment clearing house for public health nurses.

IV.—*Standardization.* Studies of and assistance in establishing standards, methods of organization, administration, publicity, and financial support, records, and reports. This function is naturally the province of all these bodies, cooperatively or individually.

V.—*Legislation.* Creating public opinion in favor of and assisting in the enactment of suitable public health nursing legislation, such as the appropriation of public funds for public health nursing, and the creation of division of public health nursing within state departments of health.

Ways and Means of Cooperation

I.—*Educational.*

1. *Courses.* The Red Cross and the National Tuberculosis Association look to the National Organization for Public Health Nursing to take the lead in matters pertaining to the education of public health nurses. Before granting either financial subsidy or scholarships to a post-graduate course for public health nurses, the Red Cross will require that the course be endorsed by the National Organization for Public Health Nursing. The National Tuberculosis Association will make the same requirement, but will insistently urge through its representative on the Educational Committee of the National Organization for Public Health Nursing that such courses make provision for suitable proportion of teaching of tuberculosis, and is ready to cooperate in establishing standards of teaching for tuberculosis nursing based upon the judgment of the leaders in this field,—medical, nursing, and sociological. It further urges similar consideration for the advice of other specialized health organizations.
2. *Forum.* The Educational Committee of the National Organization for Public Health Nursing will act as a forum for the discussion of all questions pertaining to the education of public health nurses. The Director of the Red Cross Bureau of Public Health Nursing, and the National Tuberculosis Association's Secretary for Nursing, and possibly later representatives of other national public health organizations, will sit on this Committee as members. These organizations will undertake, jointly or separately, but under the general direction of the Educational Committee, to prepare series of monographs on practical methods of conducting various public health nursing activities, and pamphlets on other special subjects as needed.
3. *Institutes.* Believing strongly in the need for annual and widely distributed institutes for public health nurses of considerable experience or training, the Red Cross and the National Tuberculosis Association will join with the National Organization for Public Health Nursing in recommending that such institutes, to cover two weeks or more, be organized and conducted by suitable established agencies within the states, with the assistance of the National Organization for Public Health Nursing, in consultation with these other national bodies. The latter will offer the assistance of their division and state staffs in conducting the institutes and will encourage their local staffs to attend. These three organizations agree that these institutes should be general in character, including tuberculosis, child hygiene, venereal diseases, and other special subjects.

The Red Cross stands ready to suggest subjects and teachers in the rural nursing field, and the National Tuberculosis Association to furnish outlines of lectures and teachers in tuberculosis subjects.

4. *Library.* In view of the fact that the National Organization for Public Health Nursing has a library department with an appropriation for adequate expansion, and has a circulating package library operating through forty-four state library centers, which has been indorsed by the American Library Association, the Red Cross, and the National Tuberculosis Association no endeavor will be made to develop duplicate library facilities but it will be recommended that their field staffs make the fullest possible use of the facilities offered by the National Organization for Public Health Nursing. The latter Organization will undertake to develop its library resources to meet the special needs of these staffs, particularly as their work affects the rural nurses.
5. *Magazines. The Public Health Nurse* has granted a section to the Red Cross Bureau of Public Health Nursing under the editorship of the Director of the Bureau, to be devoted to the activities and development of that Bureau.

The National Tuberculosis Association does not at this time suggest a department in the magazine devoted exclusively to tuberculosis, but suggests that a reasonable amount of space be given to the consideration of tuberculosis nursing and other phases of the tuberculosis movement.

II.—*Recruiting.* The Red Cross hopes to join with the national nursing organizations in a program for recruiting student nurses. The National Tuberculosis Association recognizes that this is distinctly a function of the nursing organizations.

III.—*Employment.* Believing that there are many advantages to be secured through a national clearing house of employment which would serve also as a directory of information, the National Organization for Public Health Nursing will endeavor to accomplish this for public health nurses as a part of the activities of the proposed joint nursing headquarters. It is understood that while all credentials would be obtained by such a clearing house, placements would continue to be made through the various existing agencies.

The Red Cross, because of its great demand on the supply, will appoint its own representatives to the Executive Staff of the Clearing House.

IV.—All three organizations are free to conduct analytical studies of various typical and atypical pieces of machinery for the purpose of determining standard methods of organization, practice, and technic, but will consult each other in planning these studies, in order to avoid duplication and to take advantage to the fullest extent of the facilities and fields each can offer for this purpose.

V.—*Legislation.* The National Organization for Public Health Nursing and the National Tuberculosis Association will seek to create public opinion in favor of, and assist in, the enactment of suitable public health nursing legislation, such as the appropriation of public funds for public health nursing and the creation of divisions of public health nursing within state departments of health. The Red Cross endorses this broad endeavor, but prefers not to take part in efforts involving legislation.

VI.—*Machinery for Coordination.*

1. *Joint Consultation Committee.* The Executive Secretary of the National Organization for Public Health Nursing, the Director of the Bureau of Public Health Nursing of the Red Cross, and the Secretary for Nursing of the National Tuberculosis Association will form a joint consultation committee. This Committee will meet frequently for conference relative to problems and projects confronting or contemplated by any one of the three.
2. Exchange of memoranda regarding new program or change in policy before putting the same into action.
3. State Committees on public health nursing.

The Red Cross Bureau of Public Health Nursing, the National Organization for Public Health Nursing, and National Tuberculosis Association favor and will endeavor to create state committees on public health nursing representing generally the three organizations and the state department of health and other state agencies engaged in or responsible for public health nursing activities. Such a committee will have no administrative responsibility for, but will concern itself with, the advancement of public health nursing in the state through the stimulation of public opinion, through interpretation and advice, and through the promotion of coordination.

It is mutually understood that no changes will be made in the procedure outlined in this agreement without the full consideration of the three participating agencies.

Signed:

American Red Cross,
By F. C. Munroe, general director.
National Tuberculosis Association,
By C. J. Hatfield, managing director.
National Organization for Public Health Nursing,
By Katherine Tucker, president.

FLORENCE NIGHTINGALE TABLEAU

By Gabrielle Elliot, Dramatic Editor of the *Woman's Home Companion.*

(The following tableau, designed to supply a simple dramatic entertainment for training schools wishing to celebrate the centennial of Florence Nightingale's birth, May 12, 1820, have been prepared by the National Organization for Public Health Nursing. Copies of the tableaux, with directions for costuming and staging, as well as suggestions for a reader or expositor, with references to Miss Nightingale's letters and other pertinent material, may be obtained from the Publicity Department, National Organization for Public Health Nursing, 156 Fifth Avenue, New York City, at 20 cents a copy.)

Tableau

1. *Her First Patient.*—"On the downs near Embley." Cap, a collie, lying on the bank. Florence, a girl of sixteen, her petticoat torn to make bandages, is kneeling by the dog binding his broken leg with a splint.

2. *The Nightingale Family Circle.*—Mr. Nightingale reading aloud the *London Times* to Mrs. Nightingale, sewing; the elder sister, Parthenope, drawing. Florence desperately bored and trying to conceal it, also amused. Scene, attractive interior, old fashioned but comfortable. Florence, a young lady now, but marked character.

3. *Her Apprenticeship.*—The Deaconess Home at Kaiserworth, where Florence Nightingale found happiness and her vocation.

Scene: Kitchen or simple almost medieval interior. Freiderike, wife of Fliedner, and with him founder of the Home, at work, but turns towards door through which two probationers—Agnes Jones and Florence Nightingale—enter. They wear simplified deaconess costume and Freiderike, in almost peasant costume, goes to meet them.

4. *Her First Responsibility.*—After much family opposition and not until she was 32 years old, Florence Nightingale made the decisive move which definitely committed

her to her life work. She accepted the position of superintendent of "An Establishment for Gentlewomen during Illness" and moved into the house to the scandal of many friends.

The scene represents a committee meeting—Lady Ellesmere, Lady Canning, Lady Monteagle, Lady Caroline, Murray, and others—stylish, haughty, one or two really interested and sympathetic. (Mrs. Sidney Herbert among the latter.) Miss Nightingale, standing, is bending over a table on which Lady Canning is signing a historic document—one agreeing to take into the institution patients of all denominations—even Catholics and Jews. Miss Nightingale triumphant but amused, ladies varied expressions.

5. *The Call.*—(Three following scenes can be grouped together.)

The Arch-Enemy—Red Tape.

Florence Nightingale, Mrs. Bracebridge, her lieutenant, and a nurse, with the Purveyor, in the stock room of the latter. Florence Nightingale is angry and determined. Mrs. Bracebridge rather amused, nurse frightened at her Chief's defiance of the Purveyor's authority. He is wringing his hands, Miss Nightingale is on her knees before a box, unpacking men's shirts, and handing them up to Mrs. Bracebridge.

6. *The Endless Letters Home.*—Miss Nightingale's tiny room in the hospital at Scutari. At a table piled high with documents, letters, etc., she is writing by a sputtering lamp. Mrs. Bracebridge, worn out, is sleeping on a couch. A nurse, ill, is in a bed near the table, another nurse bends anxiously over her. Two near the door confer, watching Miss Nightingale, who writes rapidly, a frown of concentration on her forehead and an official looking document propped up in front of her. The room is badly lighted, over-crowded, yet she is oblivious to everything about her in the ardor of her work.

7. *The Lady of the Lamp.*—The wards of the hospital at Scutari. Beds, uneven in length, with various coverings, so near that one could hardly wedge between them; men, half-sitting and lying prone, attitudes expressing pain or unconsciousness, Florence Nightingale, her lamp held high, bends over one man gently, arranging the covers or feeling his brow. From the lamp's rays her shadow should fall on the bed of another, who kisses it as it touches his pillow.

8. *Home Again—"The Reform Cabinet."*—Miss Nightingale's room, pleasant but business-like. Blue books, documents, letters around her. She is seated in a semi-invalid chair, but with an open book, over which she bends with eager interest. Sir Sidney Herbert, her strongest ally, stands beside her, equally interested in the book. A few men and women, examining other books, express delight and pride in Miss Nightingale. The book is the first printing of the Report of the Royal Commission, appointed after Miss Nightingale's repeated efforts to inquire into the health of the army. Attitudes of congratulation, on the part of all but Sir Sidney and Miss Nightingale.

Reader: Cook, Vol. 1, 274 ff. Choose passages indicating Miss Nightingale's continued vitality and scorn of red-tape, also Sir Sidney Herbert's efforts in her behalf. You will have to give the atmosphere of the enormous accomplishment really achieved from a sickroom.

9. *The Council Room to Which Queens Came.*—Florence Nightingale, propped up in bed, endless books, reports, etc., around her. See pictures of her in her room. The Crown Princess of Prussia, her hat and coat thrown aside, kneels by the bed, on the side of the audience, with a huge portfolio of architect's blue prints, from which she draws one and submits it eagerly but deferentially to Miss Nightingale's amused approval.

10. *Unsought Honors, 1907.*—The presentation, on November 20, 1907, of the Order of Merit, bestowed by King Edward, Miss Nightingale being the first woman to receive it. At the time she was nearly 90 years old, and memory, sight, and mental vigor had sadly failed. Surrounded by nurses and friends, the medal is presented by Sir Douglas Dawson on the King's behalf, while Miss Nightingale, murmuring vaguely "too kind, too kind," recognizes that some formal honor is being presented.

The curtain may fall on this last scene and be followed by a reading of Miss Nightingale's stirring call for nurses, in her own words, leaving the audience to make the connection with the need of the present day.

FLORENCE NIGHTINGALE PLAY

It is apparent already that the hundredth anniversary of the birth of Florence Nightingale, which occurs on the 12th of next May, will be widely celebrated. In many of the larger cities plans are under way for the holding of public meetings and appropriate ceremonies. One of the most interesting features of the celebration is the $500 prize, offered by the Central Council for Nursing Education, for the best three-act play by an American author based on incidents in the life of Florence Nightingale. The competition is especially designed to encourage aspiring playwrights in the colleges and to stimulate interest in the nursing profession. In view of the difficulties which the Hospital Training Schools are experiencing in securing sufficient numbers of desirable applicants, this competition should be extremely serviceable. All manuscripts must reach the Nightingale Centennial Committee, National Organization for Public Health Nursing, 156 Fifth Avenue, New York City, before August 1, when the competition closes. Another interesting contribution of the Centennial Committee is the preparation of the Nightingale tableau, a condensed version of which is printed in the preceding article.

TRAINING NURSES FOR INDUSTRY

The New York University School of Commerce, Accounts, and Finance is offering a course the second semester (February to June, 1920) in Standardization of Nursing Service in Industry. The course is especially arranged for industrial nurses, welfare workers, and those who contemplate entering the field of industrial welfare work.

Students enrolled in the course will be given an opportunity to make special investigations of nursing problems in large industrial plants, with particular reference to administration and organization.

Special consideration will be given such topics as: (1) Duties and responsibilities of the nurse in small and large industries; (2) Methods of teaching the worker and his family how to keep well; (3) Most approved methods required for follow-up health service in the plant; (4) Relation of the nurse to the industrial community; (5) Home nursing and personal hygiene; (6) Reducing labor turnover through health measures; and (7) Amount of hospital care available for the worker.

The fee for the course of one term is $12, plus a university fee, payable in advance. The enrollment will be limited, and applicants must be approved by the director of the department, Prof. Galloway, or by the instructor, Miss Elizabeth H. Bohn.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

APPLIED ANATOMY AND KINESIOLOGY. The Mechanism of Muscular Movement. By Walter Pardon Bowen, M.S., professor of physical education, Michigan State Normal College, Ypsilanti, Mich.*

A rather interesting volume of three hundred and thirty-four pages. The first thirty-one pages describe muscular structure and action, and the methods of studying and measuring such action. Pages 32 to 39 show very well the various types of levers that the bones in the body represent. Pages 40 to 58, present concisely the manner in which the nervous system controls the muscular. The foregoing constitutes Part I. Parts II, III, and IV describe the muscles of the limbs and trunk and their actions, also the means used in determining what certain muscles do. Part V takes up different exercises and occupations with the muscles or groups of muscles used in performing them. The book should prove very useful to all those interested in physical development and its mechanics.

AIR, WATER AND FOOD. From a Sanitary Standpoint. By Alpheus G. Woodman and John F. Norton.†

Although the book has had its chief use as a college and technical school text, and although it had been rewritten since the death of Mrs. Ellen H. Richards, the original co-author with Professor Woodman, it still retains a great deal of its original "missionary" character.

It is the hope of the authors that a book of the character they have offered will contribute to a better education of laymen in the chemistry of sanitation and, as a result of it, enlightened public opinion will accelerate the progress of sanitation. "The day is not far distant when a city will be held as responsible for the purity of the air in its schoolhouses, the cleanliness of the water in its reservoirs, and the reliability of the food sold in its markets as it now is for the condition of its streets and bridges" . . . , and "when the competency of the food purveyor will have as much weight with intelligent patrons as the scholarly reputation of any member of the faculty." Whether the authors are unduly optimistic or not, this, however, can be said: that the spirit with which the book is permeated gives, no doubt, to the student the desired scientific and civic impetus.

The purpose and "mission" of the book are best characterized by two sentences from the first chapter:

"So long as chemists are employed by manufacturing concerns in making adulterated and fraudulent foodstuffs, so long must other chemists be employed in protecting the people until the public in general becomes wiser. A part of the common knowledge of the race should be the essentials of healthful living, in order that the full measure of human progress may be enjoyed."

The book contains a great deal of valuable and well compiled information.

In view of the important recent studies in ventilation made since the book had been written, and also in view of the instructive experiences concerning food which can be derived from the war conditions, it is desirable that the book be again revised and brought up to date.

SURGICAL APPLIED ANATOMY. By Sir Frederick Treves, Bart., G.C.V.O., C.B., LL.D., F.R.C., Eng.; Sergeant Surgeon to H.M. the King; consulting surgeon to the London Hospital; late lecturer on anatomy at the London Hospital. Revised by Arthur Keith, M.D., LL.D., Aber., F.R.C.S., Eng.; F.R.S., Hunterian Professor and Conservator of the Museum, Royal College of Surgeons of England; formerly lecturer on and senior demonstrator of anatomy at the London Hospital; examiner in the Universities of Aberdeen, Cambridge, etc.; and W. Colin Mackenzie, M.D., Melb., F.R.C.S., Edin., F.R.S.E.; member of Council of the Anatomical Society of Great Britain and Ireland; formerly lecturer on applied anatomy, University of Melbourne.‡

In presenting the new (seventh) edition of Treves' Surgical Applied Anatomy, Keith and Mackenzie have done a great service for the profession. This little treatise is too good to be allowed to grow old and senile, and we are pleased to note its rejuvenation.

Like the former editions, the book is clear, concise, and remarkably detailed, covering the field of surgical anatomy.

To quote from the preface of the seventh edition: "Although many additions have been made to and minor alterations effected in the present edition, this book still retains the spirit, form, and size given to it by its distinguished author."

A LABRADOR DOCTOR. The Autobiography of Wilfred Thomason Grenfell, M.D. (OXON), C.M.G.§

Anyone who likes to read tales of good deeds well done will have a few pleasant hours with this book. Medical men in particular will feel a glow of virtuous pride that Grenfell was a doctor and that as a doctor he was able to accomplish so much. Readers of Galsworthy's "Saint's Progress" will find a pleasant comparison between the inactive theologian of Galsworthy, who has been left behind by the progressive thought and radical actions which were brought to a focus by the war. In comparison Grenfell's life stands out as a living monument to active carrying of the Word of God to men in the wilderness.

The early life of Grenfell, which is so interestingly told as to sound like pages from a modern English novel, lays bare the disadvantages as well as the advantages of primary education in England. Some of his chapters might be labeled as exhibits to prove Wells' ideas on English education. But the personal contact with big men, the association with Sir Frederick Treves, the row-

(Continued on Adv. Page 23.)

*Lea & Febiger, Philadelphia, 1919, $3.50.
†John Wiley & Sons, Inc., New York, 1919, $2.
‡Lea & Febiger, Philadelphia, $3.25.
§Houghton Mifflin Co., Boston and New York, $4

The busier one Is—the more one Needs the perfect relaxation that only good sound sleep can give

Physicians, Public Health Officials, and Industrial Welfare Workers know the importance and money value of good sound sleep.

Their work in keeping people well, keeping them physically fit, mentally and physically efficient, affords countless opportunities for determining the health-building advantages of sound, restful sleep.

It is a big temptation these days, with so much to be done, for one to cut down on their amount of sleep; but the fact remains that the busier one *is*, the more one *needs* the perfect relaxation that only good, sound sleep can give.

Most people probably need *more sleep*; certainly they need *better sleep*. And this means better beds; quiet, restful beds; beds that do not squeak, groan and rattle with every turn of the occupant.

Thousands of people declare that they never realized how deep and sound sleep can be, until they discarded wooden beds and ordinary metal beds for a Simmons Bed—noiseless, restful, sleep inviting.

Simmons Beds are noiseless; they are supremely restful and comfortable. They are strongest, where ordinary beds are weakest, at the corner locks. They stand firm, without a squeak, rattle, or suspicion of unsteadiness. Furthermore they are absolutely sanitary.

Is it any wonder, then, that Simmons Beds are the choice of up-to-date Hotels, Hospitals, Schools and Industrial Dormitories, just as they are the choice in thousands upon thousands of *homes?*

Simmons Beds are made entirely of metal—splendidly finished. They are produced in so wide a variety of styles as to enable anybody, no matter how much or little they wish to pay, to own and sleep in a *genuine* Simmons Bed.

Our complete catalog of Simmons Beds and Sleeping Equipment will be mailed promptly upon request. Address:

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.

H. T. McCLURE, Secretary.

58 EAST WASHINGTON STREET, CHICAGO.

Telephone—Majestic 8040 and 8041.

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

58 East Washington Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name_____

Street_____

City_____ State_____

BOOKS OF THE MONTH

(Continued from page 268.)

ing club, the missionary work in the slums of London, have a personal touch which adds charm and dignity to every page of the book. The descriptions of life in Labrador, of the people, go a long way towards dissipating the chill of disapproval one usually feels at the mere mention of Labrador.

The reviewer could continue commenting on the good points of this book almost indefinitely. Instead, however, he will put it away carefully along side of his Pasteur, his Trudeau, on the biographical shelf to which he goes when he needs a word of cheer or a bit of encouragement.

PRACTICAL DIETETICS WITH REFERENCE TO DIET IN HEALTH AND DISEASE. By Alida Frances Pattee, graduate, department of household arts, State Normal School, Framingham, Mass.; late instructor in dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City; former instructor at Mount Sinai, Hahnemann, and the Flower Hospital Training Schools for Nurses, New York City; Lakeside, St. Mary's Trinity, and Wisconsin Training Schools for Nurses, Milwaukee, Wis.; St. Joseph's Hospital, Chicago, Ill.; St. Vincent de Paul Hospital, Brockville, Ont.*

Any book which has passed through twelve editions in sixteen years must be a good book. This book is a good book and is deserving of the cordial reception always given previous editions.

MENTALLY DEFICIENT CHILDREN, Their Treatment and Training. By G. E. Shuttleworth, B.A., M.D.; Fellow of Kings College, London; Honorable Consulting Physician, formerly medical superintendent, Royal Albert Institution, Lancaster, for the Feeble-Minded of the Northern Counties; and W. A. Potts, M.A., M.D., medical officer of the Birmingham Committee for the Care of the Mentally Deficient, etc.†

The authors have succeeded in presenting a full discussion of mentally deficient children in a pocket size booklet of 284 pages. The pathology, symptomatology, and bibliography are up to the minute. The plates taken from the authors' own cases add a great deal to the completeness of the book.

Chapters two and three are a little too local, the material in these chapters consisting of reports of mental deficiency acts and investigations in England, including many local names. Chapter one, however, shows that while the authors are inclined to lay most stress on work done in England, they have not forgotten to give credit to American and French institutions. Indeed, it is gratifying to read of the good work done by various American counties and states towards the improvement of the mental defect.

The booklet reads well and can be used not only by physicians, but also by nurses and school teachers.

A TREATISE ON ORTHOPAEDIC SURGERY. By Royal Whitman, M.D., M.R.C.S., Eng., F.A.C.S.‡

Whitman's Orthopedic Surgery, in its sixth edition, has been subjected to a revision, bringing it into accord with the latest knowledge of the subject. It contains 900 pages, printed in large type on good paper and abundantly illustrated. Some of the old statistics and references might have been eliminated, being of little value; and many of the subjects, too briefly described, should have been amplified as to details. The final chapter devoted

(Continued on Adv. Page 24.)

*A. F. Pattee, Publisher, Mount Vernon, New York, 1918, Twelfth Edition, $2.

†P. Blakiston Son & Co., Philadelphia, 1916, $2.50.

‡Lea & Febiger, Philadelphia, 1919.

Measuring cap which double-seals the cork.

SOFOS

SOFOS is a product of the research laboratories of the General Chemical Company—one of the world's leading scientific organizations—a strictly American institution.

SOFOS—An Entirely New Preparation

The therapeutic value of sodium phosphate was established years ago—is admitted beyond question today. But, the best, which means the most efficient form in which to administer sodium phosphate, is a matter of present day performance, as supplied by

SOFOS

a preparation of monosodium phosphate NaH_2PO_4 and sodium bicarbonate $NaHCO_3$.

Its freedom from citric or tartaric acid makes it available in all cases where sodium phosphate is advisable.

SOFOS effervesces in water and forms di-sodium phosphate.

One part of SOFOS contains almost twice as much sodium phosphate as the U.S.P. salt.

The pleasant taste and prompt laxative action of SOFOS make it superior. The absence of tartrates, citrates, or unsatisfied salts, assures efficient action, and insures against "nagging" irritation or subsequent costiveness.

SOFOS is particularly serviceable in children, old people, and in debilitated or adynamic states.

SOFOS has been accepted by the Council on Pharmacy and Chemistry of the A.M.A. for inclusion in New and Non-official Remedies. Ask your pharmacist for SOFOS. If he hasn't any, notify us.

Literature on request to

GENERAL CHEMICAL CO.

SPECIALTIES DEPARTMENT

NEW YORK, N. Y.

The Scientific Principle That Makes the New York Study Chair Unique Is

The correspondent adjustments of the seat, the lumbar support, and the desk top, making it conveniently possible

TO FIT EACH CHAIR AND DESK TO THE INDIVIDUAL OCCUPANT ANATOMICALLY RIGHT

insuring good posture
in a sitting position

Earl Thompson
Sales Agent
New York City, N. Y.
70 Fifth Avenue Cor. 13th Street

Free Literature on Request

BOOKS OF THE MONTH

(Continued from page 22.)

to military orthopedics and the early development of practical reconstruction presents the most "notable change" in the treatise. Altogether, the present edition is the most reliable, definite, and concrete source of information we possess in the form of a textbook on orthopedic surgery, valuable alike to all who are interested.

THE OPERATIONS OF OBSTETRICS. Embracing the Surgical Procedures and Management of the More Serious Complications. By Frederick Elmer Leavitt, M.D., formerly assistant professor of obstetrics and gynecology, University of Minnesota; obstetrician to the City and County Hospital, the St. Paul Hospital, the Bethesda Hospital, etc., St. Paul, Minn.*

Careful perusal of this latest contribution to obstetric literature leaves the reader with some very definite impressions. The book is well written, splendidly illustrated, and attractively gotten up by the publishers. The problem of operative obstetrics is presented completely and clearly, though with a tinge of conservatism, which, after all, befits a work designed for students and practitioners. The writer uses to good advantage, judiciously selected quotations from literature, especially statistics, but employs less advantageously rather lengthy case reports. One cannot entirely suppress the feeling that here and there the space taken up by such a case illustration, should rather have been used for a more detailed discussion, *e. g.*, of the exact indications for justifiable premature termination of pregnancy in various complicating diseases. This question, one of eminent practical importance, undoubtedly in this volume is not considered in a form that could offer the practitioner definite advice.

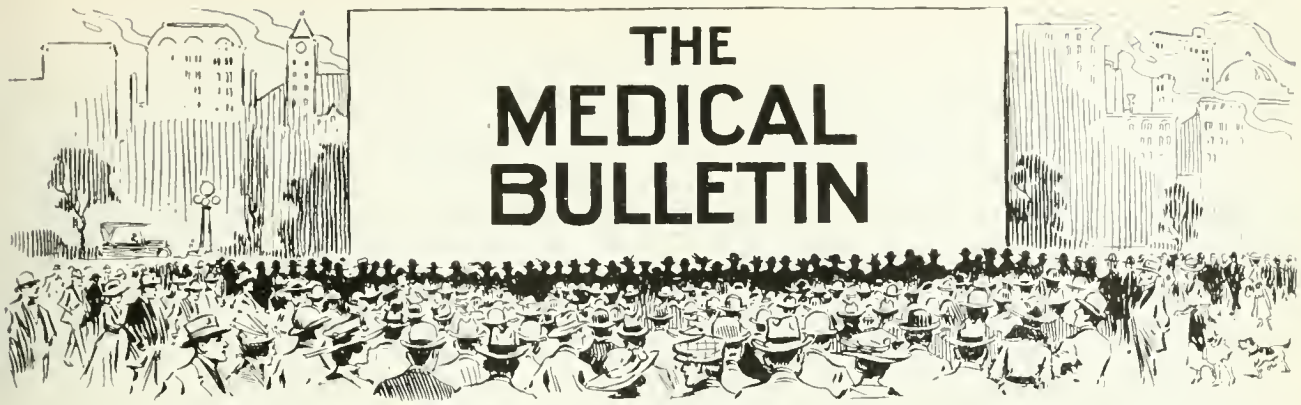
It would seem desirable in a future edition to devote also more space to a description of the various methods of extra-peritoneal Cesarean section, to mention direct blood transfusion in the treatment of severe hemorrhages, to discuss the particular advantages of spinal anesthesia in certain cases, and to emphasize the particular danger of chloroform in the severer types of toxemia; but, as stated in the beginning of this review, as a whole, this volume most assuredly is a very interesting and competent exposé of modern teaching of operative obstetrics.

ORTHOPEDIC AND RECONSTRUCTION SURGERY, Industrial and Civilian. By Fred H. Albee, A.B., M.D., Sc.D., F.A.C.S., Lieutenant Colonel, M.C., U.S.A.; professor and director of Department of Orthopedic Surgery, New York Post-Graduate Medical School and University of Vermont; chairman, Rehabilitation Commission of the State of New Jersey; member of Advisory Orthopedic Council to the Surgeon General, etc.†

In the preface the author states that the diversity of diseases, injuries, etc., treated is much greater than ten years ago and the publication, while in no way detracting from conservative methods, aims to place before the profession in a practical manner newer procedures. The introduction is a generalized discussion of a few of the principles of orthopedic surgery. Then, proceeding to the text proper, in Chapter I, we have a general discussion of tuberculosis of bones, the etiology, pathology, and treatment. Chapters II to VIII, inclusive, deal with tuberculosis of particular bones and joints, one chapter being given to the fundamental principles of the bone graft. Chapters IX, X, XI dispose of focal infection, acute and chronic infections of bones and joints. Chapter XII,

(Continued on Adv. Page 26.)

*C. V. Mosby Co., St. Louis, 1919.
†W. B. Saunders Company, Philadelphia, 1919.



EASY TO READ, TO THE POINT, AND PRACTICAL

A Reliable Reconstructive Agent

In cases of debility, weakness and anemia following influenza, the Triple Arsenates with Nuclein (Abbott) is your best tonic preparation. This excellent reconstruction combines the arsenates of iron, quinine, and strychnine with nuclein. Throw away your antiquated "I. Q. S." with its useless water, and worse than useless alcohol, and pin your faith to this preparation. Use the corner coupon for a trial order of 500 tablets at $0.94 net. You will get results.

For Your Convenience

Your druggist will stock, for your convenience in prescribing such popular items as Calcidin, Chlorazene, Sodoxylin, Abbott's Saline Laxative, Salithia, Barbital, Cinchophen, and Aromatic Chlorazene Powder.

Convenient branch offices of The Abbott Laboratories are also located in New York City, San Francisco, Los Angeles, Seattle and Toronto.

Make use of these trade channels and supply points for prompt service.

FOLLOWING THE "FLU"

Triple Arsenates with Nuclein is the best reconstructive agent you can use.

Net Price for 500 Tablets, $0.94

USE THE CORNER COUPON FOR TRIAL ORDER

March Suggestions

Dichloramine-T is now supplied in convenient tablet form, put up in convenient tubes of 20 tablets at $0.26 per tube net, or $0.75 for 100 tablets. Try them.

Anesthesin-Calcidin Troches are the latest addition to the Abbott list, and promise to be extremely popular for the instant relief of tickling coughs.

Calcidin continues to check colds. March will be a big Calcidin month.

Have you seen the new "Top-Notch" case put out by Abbott's? It contains their 21 best sellers approved by 60,000 doctors. Price, filled, $12.00 net, with booklet of therapeutic medications and dosage. This is a winner.

The new Abbott Dichloramine-T-Chlorcosane Atomizer, at $1.75 net, is a wonder. It sprays equally well, either oil or water. Send for one today. It's money back if you are not satisfied.

USE THIS COUPON

The Abbott Laboratories,
Dept. 27, Chicago, Ill.

Enclosed find $0.94 for which send me trial order of 500 Triple Arsenates with Nuclein Tablets, also, literature and prices on

.....

.....

.....

Doctor .....

Address .....

Eating Should Be An Enjoyable Function

In the restoration—and even in the *maintenance* — of physical well-being, no adjustment of the diet can be regarded as satisfactory which leaves out of consideration the factor of food flavor.

Physicians and dietitians appreciate that, in nearly all cases, food that is pleasing to the taste is more easily digested and assimilated than that eaten with less relish.

SAUER'S

PURE FLAVORING EXTRACTS

—Since 1887 flavoring the food of millions.

recommend themselves to the patient, the physician and the dietitian through their contribution of zest to foods and drinks which might not otherwise be so tempting.

Sauer's Extracts are made from the choicest materials obtainable. Every possible care is taken in their manufacture.

Specify Sauer's for Purity, Strength and Fine Flavor.

Sauer's is the largest selling brand in the United States.

Further particulars sent free.

The C. F. Sauer Company

Richmond, Virginia

BOOKS OF THE MONTH

(Continued from page 24.)

on traumatic affections of the spine, is rather interesting. Scoliosis is presented in the usual textbook way. Ninety-one pages are used to present malunited fractures of the long bones, a few other fractures and their treatment by the author's method of bone grafting. Infantile paralysis is properly given a large space and is rather thoroughly done. Neoplasms are mentioned in passing, as it were. Military and industrial reconstruction is given ninety-seven pages at the last of the book. References are profuse at the end of each chapter. The author rather emphasizes his methods of procedure for the treatment of various deformities and injuries. The pages between 272-289 are considerably mixed. Reviewing the volume has on the whole been a pleasure.

SURGERY AND DISEASES OF THE MOUTH AND JAWS. A Practical Treatise on the Surgery and Diseases of the Mouth and Allied Structures. By Vilray Papin Blair, A.M., M.D., F.A.C.S., professor of oral surgery in the Washington University Dental School, and associate in surgery in the Washington University Medical School.*

This volume is a very excellent contribution to medical literature. In it the author treats a field which is not generally covered in a thorough manner by other than the large systems on surgery. The author has spent a great deal of time and effort on his anatomical plates and descriptions, which alone would recommend the volume to the student. It is also written in a manner that is equally valuable to the surgical specialist, the general surgeon, and the dental surgeon.

In some of the chapters detail and principles are given such an important part that one must consider the author's preface, that these chapters are included for the benefit of his dental students. The author incorporates many excellent ideas and conclusions from extensive experience in plastic surgery, gained while in charge of the subsection of plastic and oral surgery in the Army.

The chapters on cleft palate are well written and accompanied by good illustrations. The author's modification of the Brophy technic for restoration of the alveolar arch in cases with complete separation of the maxillae has been repeatedly observed by the reviewer, with good results when performed early.

Cancer of the tongue is perhaps the best treated subject of the whole book. The industrial surgeon will find a great deal of valuable information on the treatment of jaw fractures.

The statistics of the British Army would encourage the use of the warm ether vaporizer as advocated by the author; however, the experience of Farr would conclude the author's armamentarium for local anesthesia and methods of preparation of anesthetic solutions to be inadequate for major surgery. His experience also does not confirm the author's statement that it is necessary to wait fifteen minutes for infiltration anesthesia. Farr has removed the tongue, made complete dissections of the neck, resected both maxillae, and on no occasion has he been compelled to wait at all after the completion of the infiltration. He condemns the preliminary outlining of the flap with a sharp instrument on unanesthetized skin and has greatly improved the author's technic of producing secondary wheals by making all but the primary wheal painlessly from beneath. Repeated small hurts, even pricks from the finest hypodermic needles, cause a nervous patient to lose confidence.

(Continued on Adv. Page 28.)

*C. V. Mosby Company, St. Louis, 1918.

Bowel regulation through diet

HERE is a new all-bran food, entirely *different* from any bran you've ever seen. It doesn't resemble in any way the dry, tasteless, ordinary bran; it has a different appearance and different flavor.

An ideal food for the counteraction of constipation and for positive regulation of the intestinal tract.

And because its delicate flavor appeals to the patient there's no difficulty in having your prescription carried out.

Kellogg's KRUMBLED BRAN

Thoroughly cooked, specially "Krumbled" by the exclusive Kellogg method and ready to serve. Makes excellent bread, muffins, porridge, puddings, etc. Every package comes to you protected by the Kellogg "waxtite" wrapper and bearing a variety of tempting recipes. Genuine Kellogg's Krumbled Bran is guaranteed by this signature— *W. K. Kellogg*

KELLOGG TOASTED CORN FLAKE COMPANY, Battle Creek, Michigan and Toronto, Canada

Electrically Lighted Surgical Instruments

The Sign of Service

E. S. I. Co.

Ours is a name of accomplishment in the cause of diagnosis. In the beginning an electrically lighted surgical instrument is made to embody the ideas of a distinguished physician or surgeon. Each accomplishment by the light of this instrument is a tribute to his skill and its efficiency, opening the way to greater gains for diagnosis and to suggestions for betterments in instrument construction.

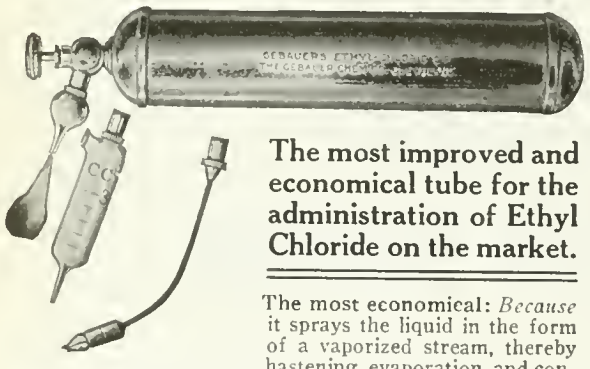
Building upon the ideas and from the suggestions of these physicians and surgeons, admittedly great in the respective branches of their exacting profession, is the story of "E. S. I. Co.," from the origination of electrically lighted surgical instruments up to the indispensable service they render today.

Origination begets imitation. Be sure of our name.

Illustrated and Descriptive Catalogue sent upon request.

Electro Surgical Instrument Company
ROCHESTER, N. Y.

Ethyl Chloride (Gebauer's) Local and General Anesthesia



The most improved and economical tube for the administration of Ethyl Chloride on the market.

The most economical: *Because* it sprays the liquid in the form of a vaporized stream, thereby hastening evaporation and consequent anesthesia, using 1-10 the liquid used by other tubes. *Because* the ethyl chloride is put up in a mteal tube that will not *leak* or *clog* and the liquid is guaranteed to maintain its purity indefinitely.

40 grm tube with ordinary spraying nozzle,	$1.10
80 " " " " " "	1.75
Flexible spraying nozzle alone, - - -	.50
Graduated dropper, - - - - - - -	.50

The flexible nozzle and the graduated dropper will fit either size tube and can be used indefinitely.

For Sale By

THE GEBAUER CHEMICAL CO.
CLEVELAND, OHIO

BOOKS OF THE MONTH

(Continued from Page 26.)

A good index and bibliography should help to make this book popular as both a text and a handy work of reference.

THE DISEASES OF INFANTS AND CHILDREN. By J. P. Crozer Griffith, M.D., Ph.D., professor of pediatrics in the University of Pennsylvania, Philadelphia; physician to the Children's Hospital of Philadelphia, and to the Children's Medical Ward of the University Hospital; consulting physician to St. Christopher's Hospital for Children, Philadelphia; corresponding member of the Société de Pédiatrie de Paris.*

The task of the reviewer of pediatric textbooks has not been a particularly happy one for the past several years. Again and again he has waded through unnecessary and uncalled-for volumes issued at the importunities of the publisher of medical textbooks in search of that *rara avis* —a "good seller." Some have been half-baked manuals, others unripe textbooks, and a few ungrammatical translations. And so it had reached a point that a new volume on pediatrics was opened with reluctance. Only a few months ago while discussing the subject with one of our well-known publishers, the reviewer advanced the opinion that the time had passed when any one author could write a general book on pediatrics that was worth the paper used for its printing, especially in these days of expensive publication.

The reviewer has since seen the publisher and retracted. The unexpected has happened, and for the first time in many, many months the reviewer has been reading a new book with both pleasure and profit. In his opinion and judgment the new two-volume textbook by Dr. Griffith is the first substantial addition to American pediatric textbooks since Dr. Holt published the first edition of his well-known work in 1897.

One cannot discuss in detail over fifteen hundred pages. Here and there one quite naturally finds details with which he disagrees, but these are so over-balanced by the completeness of the work, the sense of proportion, the saneness of viewpoint, and the openness of judgment, that such details sink into insignificance. Above all one senses throughout the work the vast personal experience of the author—the harvest of his forty years of practice and teaching—which he communicates in an unusual degree to the reader.

Dr. Griffith has made no claim to be a chemist or a student of metabolism in the modern sense—the present fashionable mode of entering pediatrics—but his discussion of this subject shows a thorough knowledge and critical sense of the essentials as proved in this field. Perhaps most criticism will be directed—and this by the younger generation—to the pages entitled, "General Principles of Substitute Feeding," and particularly to the subhead under this, "The Calculation of Milk Formulae." It is here that the reviewer differs most radically from the teachings of Dr. Griffith, although it must be admitted that the methods advocated by the author are the ones that he found useful and practical and to have given good results over years of experience. It would add to the value of the whole if only a short paragraph were added on the details of simple milk dilution. The chapter on drugs and treatment, infant foods, hygiene, and the other details regarding infancy are excellent.

It is, however, the remainder of the textbook which is of most value to the physician, both practitioner and specialist. Dr. Griffith has not simply revamped known facts

(Continued on Adv. Page 30.)

*W. B. Saunders Company, Philadelphia, 1919, $16.

HAY-FEVER
Can be Prevented

CLINICAL results covering more than 12,000 cases, attest the value of **Pollen Antigen.**[1] During the past five years, from 1915 to 1919 inclusive, **Pollen Antigen** has afforded relief from hay-fever by conferring an average protection of 82.7%.

THE treatment with **Pollen Antigen** should be started six weeks before the date of the usual onset of hay-fever. Even in those not protected, the symptoms are usually rendered mild and the attack cut short.

POLLEN Antigen is now universally used for hay-fever because:

1. Contains all the antigenic properties of pollen grains.
2. Will not deteriorate.
3. Standardized by complement fixation.
4. May be used without preliminary diagnostic tests.
5. Gives uniformly consistent results each year.

Industrial physicians and health officials will be especially interested this year in Pollen Antigen because through its use absenteeism and lowered production due to Hay-Fever can be prevented.

REQUESTS for further information are invited.

Lederle Antitoxin Laboratories

511 Fifth Avenue
New York City

Chicago Kansas City San Francisco New Orleans Montreal Minneapolis Winnipeg

[1]The name POLLEN ANTIGEN denotes the product of the Lederle Antitoxin Laboratories.

5 Cents

will serve five liberal dishes of Quaker Oats. That's the cost at this writing of a single egg.

60 Cents

is the cost at this writing of five lamb chops. A chop costs 12 times a dish of Quaker Oats.

Cost per 1000 Calories

Quaker Oats yield 1810 calories per pound. The cost is 5½ cents per 1000 calories.

Meats, on the average, cost about 45c per 1000 calories, fish about 50c, and eggs about 70c.

Yet the oat is almost the ideal food in balance and completeness. Most other foods cannot compare with it.

These are facts to spread, we argue, in these high cost days.

Quaker Oats

A superior grade, flaked from queen grains only—just the rich, plump, flavory oats. We get but ten pounds from a bushel. This grade means extra flavor without extra price.

The Quaker Oats Company

Chicago

3284

BOOKS OF THE MONTH

(Continued from Page 28.)

in regard to disease as it manifests itself in children, but has combined his own personal experience with what is perhaps the best review of the essential pediatric literature of the past twenty years. So far we have not read over a single subject without the feeling that we have gained something. The book gives evidence of years of preparation and writing with constant revision bringing it up to date. The publishers have joined with Dr. Griffith in issuing a readable page replete with original illustrations and have added much to the value of the work by including references. It can be said without the slightest exaggeration that Dr. Griffith has written a work of real value and one destined to occupy a permanent place on many shelves. B. S. V.

PRINCIPLES OF SURGICAL NURSING. A Guide to Modern Surgical Technic. By Frederick C. Warnhuis, M.D., F.A.C.S., visiting surgeon, Butterworth Hospital, Grand Rapids, Mich.; chief surgeon. Pere Marquette Railway; secretary of the Michigan State Medical Society; editor of the Journal Michigan State Medical Society, member of the Michigan State Board of Registration in Medicine.*

In a short, clear, concise manner, Warnhuis presents the guiding principles of surgical nursing technic of today.

In excellently illustrated chapters, the author takes up the preparation of the patient for operation; the preparation of the operating room in a hospital or in a private home; the duties of the nurse during operation; the usual care of the patient during the first twenty-four hours after operation; the post-operative emergencies that might arise; and many other things the surgical nurse ought to know, such as the methods of keeping charts, of preparing the usual surgical materials, such as gauze, drains, pads, etc.; of making poultices, and the common antiseptic solutions, are dealt with in detail.

The book will be extremely useful, not only to the nurse who expects to take care of surgical cases, or to the teacher in a training school, but also to the country practitioner who, not having the advantages of a hospital, must operate in homes and usually is too busy to be able to attend to the details himself.

A TEXTBOOK OF CHEMISTRY FOR NURSES. By Fredus N. Peters, A.M., Ph.D. Author of "Experimental Chemistry," "Laboratory Experiments," "Modern Chemistry," etc.; formerly professor of chemistry and director of laboratories, Kansas City College of Pharmacy; professor organic chemistry, Hahnemann Medical College; director of laboratories and professor of chemistry and metallurgy, Kansas City Dental College; head of science department, Kansas City Central High School.†

There is only one way to teach chemistry properly, whether to nurses or any other type of students, and that is by beginning systematically with inorganic chemistry and supplementing this by a thorough laboratory course. After the fundamentals of the science have been assimilated, the more intricate subject of organic chemistry may be tackled.

The author has attempted the difficult task of presenting, in one compact volume, the essentials of both organic and inorganic chemistry in such a way that the student might get the maximum in the small space of time allotted to this subject in the nurses' curriculum.

The book is very practical and popularly written.

*W. B. Saunders Company, Philadelphia, 1919, $3.
†C. V. Mosby Co., St. Louis, 1919, $1.75.

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment. Literature and samples from

RIEDEL & CO.
326 Broadway
New York City

FOR DIET CONTROL IN INFANT FEEDING

The choice of these dependable products affords the physician convenient means of selecting food mixtures suited to the individual requirements of individual cases.

MEAD'S DEXTRI-MALTOSE NO. 1

(With Sodium Chloride 2%)

For general use in infant feeding. Especially indicated in infants recovering from diarrhoea, infants with feeble powers of digestion who have tendencies to diarrhoea. Valuable as an addition to Protein Milk.

MEAD'S DRY MALT SOUP STOCK

For difficult feeding cases. Indicated in marasmus, weight disturbance (failure to gain), infants afflicted with recurrent diarrhoea from intestinal indigestion, and those cases occasionally met which do not do well on milk, water and sugar mixtures.

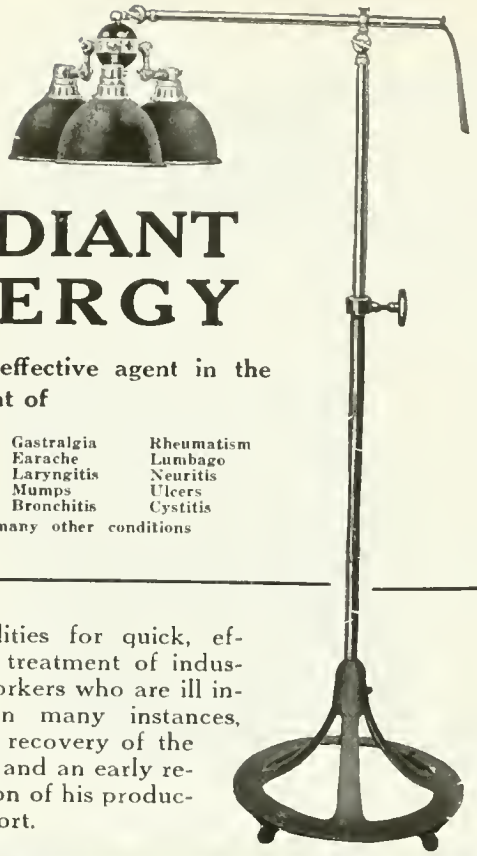
MEAD'S DEXTRI-MALTOSE NO. 3

(With Potassium Carbonate 2%)

For use in constipation, when boiled feedings are used, or where the addition of potassium to the infant's diet is indicated.

Full information regarding these products furnished on request.

MEAD JOHNSON & CO. **Evansville, Ind.**



RADIANT ENERGY

—a most effective agent in the treatment of

Neuralgia	Gastralgia	Rheumatism
Arthritis	Earache	Lumbago
Dermatitis	Laryngitis	Neuritis
Dismenurrhea	Mumps	Ulcers
Shingles	Bronchitis	Cystitis

and many other conditions

Facilities for quick, effective treatment of industrial workers who are ill insure, in many instances, speedy recovery of the patient and an early resumption of his productive effort.

Thermolite
LIGHT AND HEAT INFUSER

Delivers Radiant Light and Heat in PARALLEL Rays

Because the rays are **parallel**, they bring quick relief from pain, reduce inflammation, and promote healing.

ThermoLite is supplied in two forms—the **Triplex** for hospital clinics and office use, and **Simpex** (single lamp with or without stand) for home use.

H. G. McFaddin & Co.
39 Warren St., New York City

THE NATIONAL CONFERENCE OF JEWISH CHARITIES

The annual meeting of the National Conference of Jewish Charities which was scheduled to meet in New Orleans in April, jointly with the National Conference of Social Work. has been postponed until a later date, the meeting to take place somewhere in the East.

NATIONAL TUBERCULOSIS ASSOCIATION MEETS

The annual meeting of this organization for 1920 will be held at St. Louis April 22 to 24, with headquarters at the Statler Hotel. The dates immediately precede the meeting of the American Medical Association at New Orleans and immediately follow the meeting of the National Conference of Social Work at New Orleans, so that members attending either of the latter conferences can stop at St. Louis on their way to or from New Orleans.

AMERICAN MEDICAL ASSOCIATION MEETING

The annual meeting of the American Medical Association will be held April 26-30, 1920, in New Orleans. The greatly broadened and intensified public interest in medical matters this year has evolved issues of vital interest to the medical profession. The sectional programs are of unusual value. A large attendance at this meeting and a general participation in its deliberations are urged.

RED CROSS PEACE PLAN

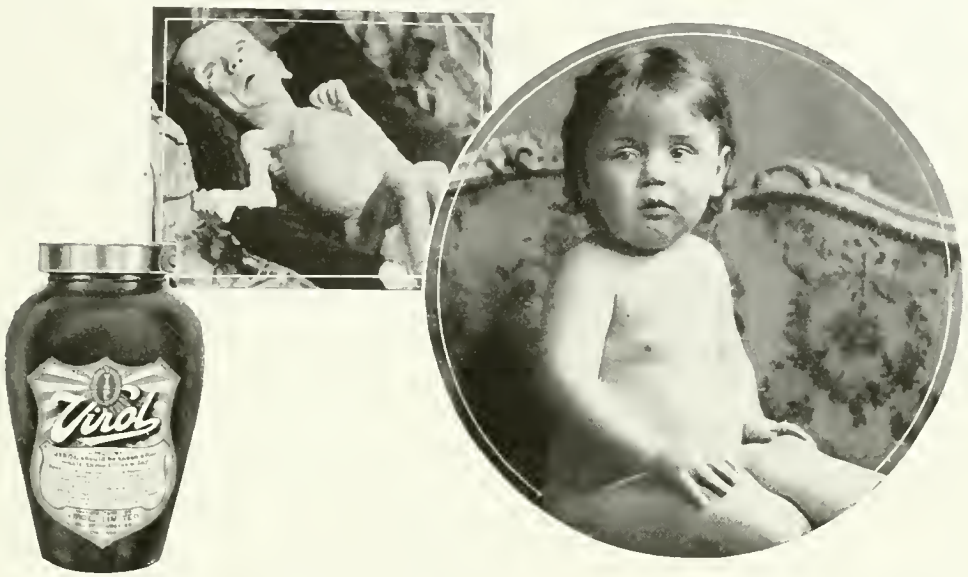
The meeting of the General Council of the League of Red Cross Societies convened at Geneva, Switzerland, on March 2. The object of the conference is the consideration of a program by which the national Red Cross societies may extend their activities in peace times by carrying out a universal campaign against disease. The American delegates to the Conference are Willoughby G. Walling, Chicago; Otis H. Cutler, New York; Mrs. William K. Draper, New York; Samuel Mather, Cleveland; and Eliot Wadsworth, Boston. The delegation will be accompanied by Henry P. Davidson, chairman of the Board of Governors of the League.

APPROPRIATION TO COMBAT INFLUENZA

The Senate has passed a joint resolution appropriating $500,000 to be used by the Public Health Service in combating influenza. The resolution directs the Public Health Service to investigate influenza and allied diseases in order to discover their causes and prevent their spread. It requires allotment of money to universities, colleges, and other research institutions for scientific investigation. The Public Health Service is accorded the privilege of making selection of such institutions. A forceful debate occurred in the Senate prior to the adoption of the resolution, Senator King of Utah opposing the resolution and objecting to the "constant encroachments of the Public Health Service organization." He said: "We will soon have the United States furnishing doctors, nurses, and hospitals for all the people, with the result of hundreds of millions of dollars being taken annually from the people." The resolution originally provided for an expenditure of $1,000,000. Senator France in charge of the resolution acquiesced in the amendment, reducing the amount to $500,000. The resolution now goes to the House of Representatives.

The nutrient value of VIROL illustrated in a series of cases, particulars of which have been supplied by medical men.

CASE No. 4



Virol is a valuable food for invalids and children. It is a preparation composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars: 50c, $1.00 and $2.00.

Liberal samples and interesting literature sent to physicians on request.

MARASMUS—VIROL is indicated in *all* conditions requiring special nutrition, such as marasmus, rickets, measles, whooping cough, infantile diarrhoea, etc.

In the case of babies not thriving on natural feeding, remarkably good results are achieved by the administration of Virol to the nursing mother. Small quantities of Virol may also be given to the baby between feedings.

Baby Povall wasted away until at six months old he only weighed 6 lbs. 8 ozs. In this terrible condition VIROL was given, and an immediate improvement took place. After four months' feeding on VIROL he took a prize at a Baby Show. Note the splendid condition of this 31-1/2 lb. baby.

Virol

Used in more than 2000 hospitals, sanatoria, and infant clinics in Great Britain

Sole Agents for U. S.

GEO. C. COOK & COMPANY, INC., 59 Bank Street, New York

MERCK

Genuine

ICHTHYOL

is obtainable only in Bottles or Tubes under the Merck Seal and Label

Physical Conditioning

So many patients, especially women, lack the initiative to follow general advice regarding exercises, dietary, and personal hygiene. Physicians acquainted with my work are constantly referring these cases to me for physical and mental "conditioning."

A woman can often inspire her sex *to be* and *to do* and *hold her to this inspiration* by regular correspondence as men cannot.

Every pupil's requirements are studied individually, and each is directed according to her needs and her strength.

This cooperative work with the medical profession is giving results highly gratifying to both physicians and patients.

I shall be glad to assist you with patients who need conditioning through exercise, diet, breathing, correct poise, relaxation, reduction of flesh, or building of flesh.

Susanna Cocroft

624 Michigan Boulevard Chicago

HARVARD ENGINEER IN BUREAU OF HYGIENE

Professor George C. Whipple, of Harvard University, has been appointed director of the Division of Sanitation, in the Bureau of Hygiene, of the League of Red Cross Societies. He will at once take up the task of organizing this new and important work, which is designed to become a sort of international health department and general clearing house for the exchange of information on public health activities in all parts of the world. Professor Whipple will continue until February in his work at Harvard, where he is secretary of the School of Public Health and professor of sanitary engineering.

Professor Whipple is widely known as an authority on water supply. His work has carried him to various parts of the United States, and as deputy commissioner of the American Red Cross Mission to Siberia, brought him into contact with the sanitary needs of many countries.

AMERICAN LIFE INSURANCE MEDICAL PROGRAM

One of the interesting features of the medical program of the American Life Convention at French Lick Spring, Ind., held March 10 to 13, 1920, was the illustrated lecture on influenza given by Dr. A. C. Page, medical director of the Provident Life Insurance Company, of Des Moines, Ia.

Dr. Charles Lyman Greene, of St. Paul, Minn., discussed at some length the pertinent application of the "soldier's heart" to the common but formerly unrecognized civilian ailment. "Rating Physical Impairments," constituted the contribution of Dr. H. A. Baker, Medical Director, Kansas City Life Insurance Co., and an interesting and valuable analysis of "The American Men Mortality Rate" was made by Robertson G. Hunter, Vice President and Actuary of the Equitable Life Insurance Company, Des Moines, Ia.

PENNSYLVANIA INDUSTRIAL PHYSICIANS CONFER

On the last day of a four-day Safety Congress to be held in Harrisburg, Pa., the last week in March, the Pennsylvania Department of Labor and Industry will hold its Tenth Annual Conference of Industrial Physicians and Surgeons. The personnel of the leaders of the discussions, and the nature and range of the industrial health topics treated afford assurance of the value of the material presented. Their program follows:

Chairman: Dr. Francis D. Patterson, Chief, Division of Industrial Hygiene and Engineering, Pennsylvania Department of Labor and Industry.

Address of Welcome. By Hon. Clifford B. Connelley, Commissioner, Pennsylvania Department of Labor and Industry.

The Rehabilitation of the Industrial Cripple. By Dr Harry E. Mock, President, American Association of Industrial Physicians and Surgeons, Chicago, Illinois.

The Problem of the Malingerer. By Dr. Judson C. Fisher, New York City.

Heart Disease in Relation to Industrial Efficiency. By Dr. William E. Robertson, Philadelphia, Pa.

The Physically Substandard Worker. By Dr. Irving Clark, The Norton Company, Worcester, Mass.

Influenza. By Dr. Alfred Stengel, professor of medicine, University of Pennsylvania, Philadelphia, Pa.

Health Education in Industry. By Dr. C. E. Ford, General Chemical Company, New York City.

Plant Dispensaries and Their Equipment. By Dr. C. D. Selby, Toledo, Ohio.

Occupational Diseases and Their Compensation. By Dr. Frederick Hoffman, Third Vice President, Prudential Insurance Company of America, Newark, N. J.

Arsenic and Mercury are Indispensable in the Treatment of Syphilis

We recommend

SALVARSAN or NEOSALVARSAN

(Arsphenamine-Metz) (Neoarsphenamine-Metz)

powerful and easily administered spirochetecides, which are as efficacious as the imported products,

and

BICHLORIDOL or SALICIDOL

(Mercury Bichloride) (Mercury Salicylate)

put up in **COLLAPSULES** (compressible ampules), which insure absolute accuracy of dosage with absence of pain after intramuscular injection.

This combination of anti-luetics has no superior in the therapeutic field. Literature upon application to

H. A. METZ LABORATORIES, Inc.

122 HUDSON STREET,
NEW YORK

Thorner Brothers

Hospital Supplies and Aseptic Hospital Furniture

388 Second Avenue New York City

"One Quality and One Service—The Best"

Rubber Goods, Glassware, Instruments, Syringes, Brushes, Operating Tables, Cabinets, Stretchers, etc.

—1860 - 1920—

With the coming of 1920, the house of Reed & Carnrick will round out

Sixty Years of Faithful Service to the Medical Profession

From the inception of our business we have ever sought the friendship and confidence of physicians, and whatever results we may have obtained, we do not hesitate to attribute largely to the splendid co-operation that has been given us by the medical profession.

Therefore, in calling attention to this—our Sixtieth Anniversary—we wish to thank our many medical friends not only for their unfailing interest and good will, but also to assure them that, as in the past, we shall continue to regard their confidence as "our greatest asset."

REED & CARNRICK

Jersey City, N. J.

"From Contented Cows"

Carnation Milk is pure cows' milk from America's fine dairy sections, evaporated to the consistency of cream, hermetically sealed, then sterilized.

Recognizing its absolute purity and uniformity of quality, convenience, and economy, physicians, nurses and dietitians everywhere turn to Carnation Milk as a solution of the pure milk problem.

Write for special booklet on "Evaporated Milk in the Modern Diet."

CARNATION MILK PRODUCTS CO.
334 Consumers Building, Chicago, Ill.,
or Stuart Building, Seattle, Wash.

Carnation Milk

"From Contented Cows"

For Sale by all Grocers

The label is white and red

HEALTH CAMPAIGN IN NEW YORK

A health campaign is being instituted in New York City by the United Neighborhood Houses. Plans have been laid by the Association to establish in every community where there is a neighborhood house a health center which will work intensively along the line of social hygiene, nutrition, tuberculosis, and maternity protection.

MINNEAPOLIS UNDERTAKES SAFETY WORK

The Minneapolis Civics and Commerce Association stands sponsor for a safety campaign which will promulgate safety measures in both public and industrial fields. Dr. C. H. Kohler has been appointed acting chairman of the local safety council. Dr. Kohler, supported by the Committee on Accident Prevention of the Civics and Commerce Association, is working out the details of organization with W. R. Rasmussen, regional field secretary of the National Safety Council.

AMERICAN PHYSICAL EDUCATION ASSOCIATION

The convention program announced for the meeting of the American Physical Education Association announced to take place April 7-10, 1920, in New York City, contains the names of a number of authoritative speakers and a range of subjects that command the interest of both professional and lay workers. Prof. E. L. Thorndyke, of Columbia University, will discuss "Educational Tests for Physical Efficiency." Prof. Irving Fisher is scheduled to give an address on "Health and the High Cost of Living." Prof. Frederic S. Lee, of Columbia University, is scheduled for an address, and Dr. George E. Vincent, president of the Rockefeller Foundation, will talk on "Relation of Physical Education to Leisure Time in Industry."

NATIONAL CONFERENCE OF SOCIAL WORK

The National Conference of Social Work will convene in annual session in New Orleans April 14-21, 1920, just preceding the meeting of the American Medical Association. Reports of the activities of the Organization will be made under ten departmental sections dealing with children, delinquents, health, public agencies, the family, industrial and economic problems, the local community, mental hygiene, the organization of social forces, and Americanization.

The opening evening will be devoted to addresses by the president of the Organization, Owen R. Lovejoy, who is also secretary of the National Child Labor Committee; by Felix Adler; and by Randall J. Condon, superintendent of the Cincinnati, O., public schools.

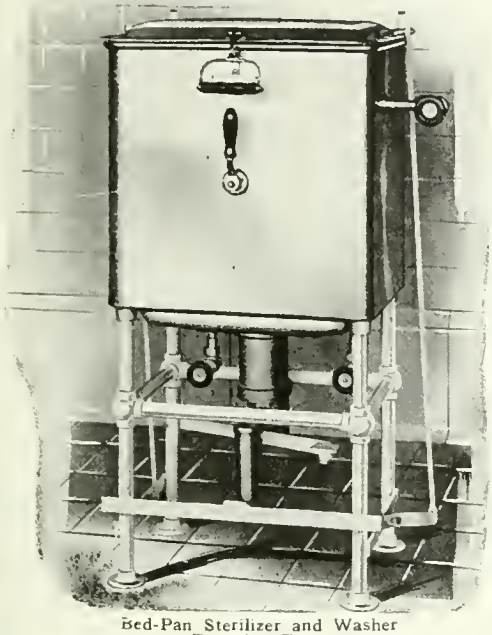
Addresses on health topics will include a contribution by Dr. Royal Meeker on the relationship to standards of living. Recent health legislation will be reviewed, and the health work of the Red Cross will be considered. One meeting will have as the subject of discussion the social responsibilities of the hospital.

The Division on Mental Hygiene is under the direction of Dr. C. Macfie Campbell, of Johns Hopkins University and Hospital. This Section will present a study of the supervision of the mentally handicapped outside of institutions. The mental hygiene of industrial work will receive consideration. An interesting and valuable feature in this Section will be a summary of the materials developed by the late Dr. E. E. Southard, of Harvard University.

"AMERICAN"

THE PRODUCT OF SPECIALISTS

BUILDINGS versus EQUIPMENT



Bed-Pan Sterilizer and Washer
Dumping Type

The reputation of an institution does not depend so much upon the character of the buildings that house it as upon its PERSONNEL and its WORKING EQUIPMENT.

Beyond a certain point anything that may be added to the exterior becomes an embellishment—beautiful but not VITAL.

Proper sterilizing equipment is vital.

Next in importance to the human element in any undertaking are man's mechanical aids. Doubly so is this true of the Surgeon's work.

"AMERICAN" sterilizers are built to be worthy of this important role. DEPENDABLE, EFFICIENT and EASY OF OPERATION—they have gained the front and have kept it. Investigate "AMERICAN" sterilizers and you will find that the secret of their success is HIGHEST QUALITY and LONGEST SERVICE.

AMERICAN STERILIZER COMPANY, Erie, Pa.

CALUMET TEA & COFFEE COMPANY

409-411 W. HURON ST. CHICAGO

The Coffee Problem

We have solved the Coffee problem for Hospitals, Sanitariums and other institutions in our coffee plant. It is a large factor in our ability to supply a standardized product—to maintain a uniformity in the roasting and blending processes whereby we can meet continuously and confidently the requirements of our customers for coffees which they have found to their liking and in which they wish no variation as they purchase from time to time.

Many of our customers simply say: "Send us another drum of our coffee." Our records show what is wanted in each case, and our method enables us to duplicate exactly every time. This is our coffee standardization plan, by which we render a reliable and pleasing service.

Roasting and Cooling.

Grinding and Packing.

Bins for Various Blends.

ARISTON COFFEE-CEREAL BLENDS

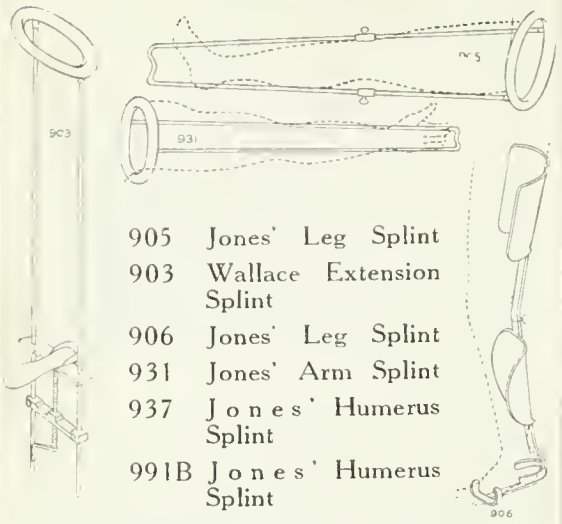
And don't forget our Ariston Coffee-Cereal Blends, whereby we provide you a perfect coffee beverage (not in any sense a substitute), with real food value, reduced caffeine content, and at a substantial price saving. Only by trial can you know the merit of these blends, which are especially valuable for hospital use in serving patients who ought not to drink straight coffee.

Furnished in the following blends:

Ariston Coffee-Cereal Blend, No. 1, per lb.	$0.38
Ariston Coffee-Cereal Blend, No. 2, per lb.	.36
Ariston Coffee-Cereal Blend, No. 3, per lb.	.34
Ariston Coffee-Cereal Blend, No. 4, per lb.	.32
Ariston Coffee-Cereal Blend, No. 5, per lb.	.30

Let us ship you a trial order of 100 pounds. We guarantee the goods. If not satisfactory ship back at our expense. 3-20

Army Hospital Splints — All Patterns



905 Jones' Leg Splint
903 Wallace Extension Splint
906 Jones' Leg Splint
931 Jones' Arm Splint
937 Jones' Humerus Splint
991B Jones' Humerus Splint

Max Wocher & Son Co.

Surgical Instruments
Hospital Furniture
Sanitary Office Outfits

19-27 W. Sixth Street
CINCINNATI, O.

"KELENE"

PURE CHLORIDE OF ETHYL
For Local and General
ANAESTHESIA

Manufacturers:

FRIES BROS.

92 Reade Street, NEW YORK

Sole Distributors for the United States

MERCK & CO.

NEW YORK RAHWAY, N. J. ST. LOUIS

Literature sent upon request

SCHOOL FOR PUBLIC HEALTH NURSES

A sixteen weeks' post-graduate course for public health nurses is provided under the auspices of the Buffalo University (New York), the Buffalo chapter of the American Red Cross, the Department of Health, the District Nursing Association, and the Department of Hospitals and Dispensaries. The excellent teaching staff and the facilities for practical work afford opportunities of unusual value for special training in this field.

HEADS NORTHERN DIVISION RED CROSS

Announcement is made of the appointment of Dr. Mabel Ulrich, of Minneapolis, as a director of the new health service department of the Northern Division, American Red Cross. Dr. Ulrich has been on the staff of the Minnesota State Board of Health, and is chairman of the public health committee of the Minneapolis Board of Public Welfare. She has been a national lecturer on social hygiene for the Young Women's Christian Association.

HEALTH CENTERS FOR ALL NEW YORK BOROUGHS

Plans are under consideration by the Department of Health of the city of New York for the establishment of health centers in all boroughs of the city. Each of the new centers is to be a miniature health department where advice will be furnished on any subject relating to public welfare and where the various functions of the health department will be coordinated. Each of the five borough offices has already been equipped with a clinic where vaccinations are performed, food handlers examined, and mothers can go for advice. An expert from each of the bureaus—preventable diseases, child hygiene, food and drugs, vital statistics, and the sanitary bureau—has been assigned to the various borough offices.

FORM NEW TUBERCULOSIS ASSOCIATION IN NEW YORK CITY

The anti-tuberculosis work in New York City which for the past seventeen years has been thoroughly and energetically carried on by the Committee on the Prevention of Tuberculosis of the Charity Organization Society, has been taken over by a new and larger corporation, the New York Tuberculosis Association, Inc. All the members of the old committee, including such prominent workers in the tuberculosis field as Dr. Hermann M. Biggs, state commissioner of health; Dr. Royal S. Copeland, health commissioner of New York City; Mr. Lee K. Frankel, Dr. S. S. Goldwater, Mr. Thomas W. Lamont, Dr. S. A. Knopf and others are members of the board of directors.

The objects of the Association are: the study of tuberculosis and of the means of preventing it; the dissemination of knowledge as to the nature of the disease, its causes and the methods of its prevention and its treatment; the promotion of adequate facilities for the prevention of tuberculosis and for the care, treatment and economic rehabilitation of persons afflicted therewith, and the coordination of the work of public and private agencies engaged in any of the foregoing activities.

Dr. James Alexander Miller is the president of the Association and Mr. Homer Folks is the vice president. Dr. John S. Billings, long connected with tuberculosis work in New York City, is the Director.

Among the secretaries so far appointed are: Mr. G. J. Drolet, statistician; Miss Gretta Jones, relief organizations; Mrs. Josephine Toering, tuberculosis dispensaries; Mr. E. C. Rybecki, labor; Mr. David Ryan, publicity.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors Alexander Lambert, M. D., S. S. Goldwater, M. D., *and* John A. Lapp, LL.D.
Managing Editor John A. Lapp
Editorial and Business Offices, 58 East Washington Street, *Chicago*

Volume 2. APRIL, 1920 Number 4

NOTES AND COMMENT

HEALTH CENTERS IN NEW YORK

THE health recommendations of Alfred E. Smith, Governor of New York, urging the necessity of extending facilities for the conservation of health, emphasized the present tendency of physicians to concentrate in the centers of population. Many of the rural districts in New York have been practically abandoned, resulting in a situation so inimical to public welfare as to call for a redistricting of the state which will enable each district to support a proper health administration and bring all distric tusnder state supervision. The solution is to be found in health centers which provide full-time health officers, consultant and laboratory service, hospital care, and efficient home nursing. It is expected that these centers will provide facilities for group practice that will counteract the tendency of physicians to locate in the cities.

Following the recommendations of Governor Smith, there has been prepared and introduced in the legislature of New York a comprehensive bill providing for the wide extension of medical service through public facilities. Probably never before in the history of this country has so far-reaching a measure been proposed by responsible authorities.

Modern Medicine presents in this issue the summary of the bill prepared by the New York State Department of Health. In brief, the purposes, as stated by the department, are as follows:

(1) To provide for the residents of rural districts, for industrial workers and all others in need of such service, scientific medical and surgical treatment, hospital and dispensary facilities and nursing care, at a cost within their means or, if necessary, free.

(2) To assist the local medical practitioners by providing: (a) Facilities for accurate diagnosis by a coordinated group of specially qualified physicians and surgeons, both for hospital patients and for out-patients. (b) Consultations and advice as to treatment by medical and surgical experts. (c) Clinical, bacteriological and chemical laboratory service and X-ray facilities at moderate cost or free when necessary.

(3) To encourage and provide facilities for an annual medical examination to detect physical defects and disease and to discover conditions favorable to the development of disease, and to indicate methods of correcting the same.

(4) To provide or aid in securing adequate school medical inspection and school nursing service (in cooperation with the Department of Education).

(5) To secure or aid in securing better enforcement of the Public Health Law and a more effective administration of Public Health activities within the area served.

(6) To provide a Public Health nursing service adapted to and adequate for the community served.

(7) To aid in securing the dissemination of information in regard to Public Health throughout the area served.

(8) To aid in securing adequate compensation for medical and surgical care rendered in hospitals and clinics, in order that efficient service may be everywhere available.

(9) To provide laboratories, group diagnosticians, consultants, and hospital facilities in the smaller cities and rural districts, and to counteract the growing tendency of medical practitioners to remove to larger centers, and to attract to and to retain in the practice of medicine in these communities a larger number of qualified practitioners of both sexes.

(10) To provide medical libraries including books, pamphlets, periodicals, leaflets, exhibits, moving picture films, and kindred educational facilities, with halls for meetings if needed.

(11) To provide hospital and other necessary resources for dealing promptly with epidemics.

(12) To reduce illness and disability among the industrial workers of the state by providing prompt and

accurate diagnosis and efficient treatment for sick and injured workers and the members of their family.

(13) To coordinate public health activities within the districts.

The progress of this measure will be watched with keen interest by physicians and social workers. That there will be divergence of opinion must be expected. The bill innovates so much on old systems that the conservative is likely to hold back. Those who have caught the vision of the new mission of medicine, however, may be expected to join their approval heartily with this measure.

SIR AUCKLAND GEDDES AND SOCIAL RECONSTRUCTION

PHYSICIANS both in America and in England are gratified at the recognition given to an honored member of the medical profession by the selection of Sir Auckland Geddes as British Ambassador to the United States. Sir Auckland is a physician and a teacher of physicians and, in addition, has had a brilliant experience as Minister of National Service in the cabinet of Lloyd George. Moreover, he is a medical statesman who sees beyond the present to the greater function which medicine may perform in the newly reconstructed world.

Special interest attaches to the views of Sir Auckland concerning the medical profession in the new era. Americans are privileged to secure such a view in the volume of "Contributions to Medical and Biological Research" dedicated to Sir William Osler, which has just come from the press. In this volume, under the title "Social Reconstruction," Sir Auckland gives a vision of the opportunity of the physician. "We are at this moment," he says, "in the power of a world-wide emotional storm the full effect of which is not yet manifest. Is the Armada of civilization to be dashed to pieces on the rocks now almost beneath our bow? The issue may well be in doubt for years to come. It depends largely, though by no means exclusively, upon the medical profession.

"Much of the new chart that is now preparing has to do with physical health and clearly can be accurately plotted only by men who know the achievements and limitations of medical science. Already the politician and the civil servant, untrammeled by medical knowledge, are becoming health experts and are at work plotting the chart. There is great danger in this, but it is useless to cry for spilt milk. It is peculiarly useless for the medical profession to cry, for the pitcher was in their hands. If only we can round the rugged promontory of the next few years, and if the future be consciously and conscientiously prepared in the universities, in the schools, aye, in the nurseries, and if the medical profession clearly and carefully speak the truth, so many correctly plotted points may be added to the chart of human life; then the fleet of humanity will come safe to port in spite of all. We cannot hope that every point plotted will be correctly placed. We cannot hope so much from this generation of doctors as we may rightly expect from the next; but if we could all see, as I believe many medical men in English-speaking countries do, a little further and a little more clearly than the lay world in the direction in which the emotion of human betterment is driving us, then the now middle-aged might live to rejoice at the recognition of medical science as the main basis of political action, for all political action aims nominally at least to secure the health and well being of the people."

Sir Auckland criticizes the training of physicians because it does not develop citizenship. He declares that doctors are "immature citizens," with their knowledge of citizenship "divorced from their technical knowledge." Discussing this point further, he declares that "the measure of failure of the medical profession is to be found in the revelation of the recruiting medical boards, and in such documents as the Report of the Royal Commission on Housing in Scotland. If the medical profession had been using its technical knowledge in the interests of the State as a whole, it would have been insistent years ago in the demand for better housing, for better feeding, for better wages, for shorter hours of labor, not for itself but for the toiling millions to whom it ministers. Isolated voices were heard, but the demands that could not have been resisted were never made. The profession had only to organize its own knowledge and tell the truth about the conditions of the lives of the workers to compel the emotion of human betterment throughout the world to force action."

Fortunately, Sir Auckland sees the prospects of better conditions both for the world and the medical profession. He finds this prospect in the newly released force of womanly instinct and emotion. "The male," he says, "in virtue of a million years of war, is a fighter," for whom the day in which he lives and the action of today "are more important than the morrow which he may never see, or the fruits of autumn which he may never know." On the other hand, the instincts of motherhood teach women to see in the child the adult that is to be. Thus, while the male "is equipped to fight the invading bacillus for his patient's life," the female reacts as surely to "the slow drawn torture of over-work and bad housing."

VICTOR C. VAUGHAN, M.D., President, National Tuberculosis Association

ALEXANDER LAMBERT, M.D. President, American Medical Association

ELLA PHILLIPS CRANDALL, Executive Secretary, National Organization for Public Health Nursing

DR. WM. C. BRAISTED, Surgeon General, United States Navy, President-Elect, American Medical Association

HARRY E. MOCK, M.D., President, American Association of Industrial Physicians and Surgeons

THE annual meetings scheduled for April show a greatly broadened interest in medical topics and their several programs are of unusual interest. The American Medical Association will convene in New Orleans April 26-30, under the presidency of Alexander Lambert, M.D.

The growing sense of the civic responsibility of the physician is shown in the range of medico social subjects covered by the program of the American Association of Industrial Physicians scheduled for April 25-26. The two-day session in New Orleans in advance of the American Medical Association should be well attended.

The National Tuberculosis Association is to be held in St. Louis April 22-24, the place and date making it a convenient stop-over en route to New Orleans.

The National Organization for Public Health Nursing will meet in Atlanta April 12 to 17 under the presidency of Katherine Tucker.

THE CONTRIBUTIONS OF LAYMEN TO MEDICAL SCIENCE

By JAMES A. TOBEY, American Red Cross, Washington, D. C.

THE history of medicine contains many instances of doctors who have excelled in arts and sciences other than their own. Avicenna was a great geologist. Two of the popes, John XXI and Paul II, were physicians. Goldsmith and Schiller were medical graduates and Rabelais was a priest and physician. It is said that Haller lost the election of doctor to the hospital of his native city on the ground that he was a poet. Claude Bernard was another who invoked the muse. In recent times Drs. Oliver Wendell Holmes and S. Weir Mitchell are best known to the general public as literary men. Leonard Wood is thought of as a distinguished soldier and statesman, though most people are familiar with his early medical training. And so on, one might cite innumerable examples of doctors who have enriched other fields of endeavor with their work.

Versatility of Scientists

The converse is also true that medical science has profited greatly by the discoveries and developments of those who are classed as non-medical. Our present day conception of a "layman" is a person who does not possess a medical degree. Previous to the beginning of the nineteenth century a layman may be defined as one who was not actively a professor or practitioner of medicine. It would hardly be fitting to call John Hunter, the greatest of anatomists, a layman, though his education was only that of the school of experience. On the other hand, Thomas Huxley was a medical graduate, but his life work was preëminently that of a naturalist and he is not classed as a medical man.

General science in the medieval ages and even in the period following Renaissance was of a character that permitted men to be masters of several branches of it. Today the scope of learning is so vast that more often a mastery of only a part of one branch of science is possible. In the fifteenth century, for instance, it was no unusual thing for a scientist to be described as a mathematician, astronomer, alchemist, philosopher, and physician. The term "Doctor of Medicine" was first applied to graduates of the University of Salerno in the twelfth century. Examinations to practice medicine were first held in 1140 in accordance with an edict of Roger II of Sicily. In 1224 his grandson, the Emperor Frederick II, issued a broader requirement in which the candidate had to be examined in public by the masters of Salerno. The test was based on the books of Hippocrates, Galen, and Avicenna, and the previous training of the candidate must have included a study of logic for three years, medicine and surgery for five years, and a year of practice for one year under the direction of an expert.

SCIENCE IS CUMULATIVE

Time was when the man of vision worked alone in his laboratory. His detached discoveries were slow to find credence, and their application in other fields was not readily understood.

With the appreciation that all matter is similarly constituted, that physical laws are universal, that nothing is isolated but everything interacts, came the correlation of the sciences. The greatest man in any field is the one who sees facts in their largest relationships. No science can stand alone, nor are the fruits of research for the esoteric, but must contribute their quota to science and to civilization.

There is no time in an essay of this character to attempt to take up the many discoveries which had an indirect bearing on medicine, such as the invention of printing or the laws of gravitation; in fact, there are so many discoveries by laymen that have had a direct influence of importance on medical science that only some of the more significant of these can be mentioned. As Oliver Wendell Holmes writes in his "Medical Essays," "Medicine . . . appropriates everything from every source that can be of the slightest value to anybody who is ailing in any way, or likely to be ailing from any cause. It learned from a monk how to use antimony, from a Jesuit how to cure agues, from a friar how to cut for stone, from a soldier how to treat gout, from a sailor how to keep off scurvy, from a postmaster how to sound the eustachian tube, from a dairy maid how to prevent small-pox, and from an old market woman how to catch the itch insect. It borrowed acupuncture and moxa from the Japanese heathen, and was taught the use of lobelia by the American savage"

In his book entitled "Pathfinders of Medicine" Victor Robinson devotes chapters to Ambroise

Paré, the surgeon; Scheele, the apothecary, Cavendish, the chemist, Jenner and vaccination, Schleiden and Schwann, and to Darwin, the saint of science. There are fifteen chapters and six of them are about non-medical men. Some sixteen years ago Dr. George M. Gould wrote a long and interesting article on "Medical Discoveries by the Non-Medical" for the *Journal of the American Medical Association.*

The Mechanics of Surgery

Although believed to be more ancient than medicine, surgery did not become a part of medical science until the time of John Hunter (1728-93). The invention of gunpowder by Berthold Schwartz in 1330 caused a reform in existing methods of surgery. Its practice was in the hands of strolling mountebanks, bath keepers, and barbers. The creator of surgery was one of the latter. He was Ambroise Paré, born in 1510. He served as a barber's apprentice and as a dresser until he became an army surgeon in 1537. Though treated contemptuously because of his lack of education and because he wrote in French instead of Latin, he soon became the acknowledged leader in surgery and served as surgeon for three kings of France. He reformed the treatment of gunshot wounds and contributed much to obstetrics. He is also credited with being the first to accuse flies of carrying disease.

In gynecology the first cesarean section was performed by a sow gelder, Jacob Nufer, in 1500. Another sow gelder is said to have done a double ovariotomy on his daughter a few years later. The French midwife, Louise, wrote an authoritative treatise on obstetrics the latter part of the sixteenth century and an English family devoted to midwifery, the Chamberlains, invented an obstetric forceps about 1670, which they kept as a family secret for two hundred years.

Eli, a strolling quack, is credited with the first perforation of the tympanic membrane for deafness. A French postmaster, Guyot, first attempted the catheterization of the eustachian tube in 1724. A London singing master, Garcia, invented the laryngoscope, and drainage tubes were first made by Captain Creighton in 1730. Chloroform was discovered in 1831 simultaneously by Dr. Guthrie, and by the chemists Soubeiran in France and Liebig in Germany. Ether was introduced principally by two dentists, Horace Wells, in 1844, and W. T. G. Morton, in 1846, in the United States.

The physicists have contributed much to the advancement of medicine. Dr. Roswell Park, in his "Epitome in the History of Medicine," remarks: "The laws of physics have been shown to have an inseparable connection with anatomy and physiology; through Helmholtz they brought the ophthalmoscope; thermal electricity, for the discovery of which medicine is indebted to Seebeck; a better knowledge of optics, thanks to Fraunhofer, who was equally expert in electricity; spectrum analysis, invented by Kirchoff; and the varied efforts of Faraday, Graham Bell, Thomas Alva Edison, and Daguerre, the latter known for his invention of photography. Finally, medicine is immeasurably indebted to Tyndall and Huxley for their teaching of the correlation and conservation of energy."

The whole subject of ophthalmology was developed by the physicists and astronomers. Kepler, an astronomer, wrote an epoch making treatise on vision in 1604. He discovered that the crystalline lens was not the seat of vision as had been supposed, but that its function was for the refraction of light, like other lenses. Interest in the anatomy of the eye was aided by the researches of Newton on light and color. Before Helmholtz, a layman, Babbage, had devised an instrument for looking into the eye. Benjamin Franklin (1706-90) invented bifocal lenses in 1785. Franklin also invented a flexible catheter, advocated treatment of mental disease by electricity, and wrote numerous letters on various medical subjects. Electro-physiology received its impetus from the work of Volta and Galvani.

Another physicist of note, whose doctrines were of importance to medicine was Francis Bacon (1561-1626). Dr. David A. Gorton, in his "History of Medicine," states "the name of Francis Bacon does not usually appear in the galaxy of great names in medicine. Nevertheless, it deserves a place there. He was not a physician, it is true, except in the sense that he was a philosopher, and a man, therefore, whose grasp of things embraced the whole of nature and therefore of man. . . . He gave a great impetus to science and conferred an incalculable benefit upon medicine by recalling to the attention of men the proper way to approach the study of the phenomena of disease." Among other things, Bacon discovered the law of the transmission and reflection of sound in 1624.

The theory of respiration was, in the words of Dr. F. H. Garrison, "from Borelli to Magnus, almost exclusively the work of three mathematicians, two physicists, and five chemists." Borelli (1608-79), a mathematician, originated the neurogenic theory of the action of the heart. Respiration was worked on by Robert Boyle, the chemist, and by Robert Hooke, in the middle of the seventeenth century. Intravenous injection was first performed by the architect, Sir Christopher

Wren, assisted by Boyle, in 1656. He was the first to urge transfusion and Boyle the first actually to perform it on animals. In 1666 Denys, a professor of philosophy and mathematics, performed the experiment on human subjects. The completion of the theory of respiration was due to the discovery of different gases of the atmosphere by the chemists Black, carbon dioxid in 1757; Cavendish, hydrogen in 1766; Rutherford, nitrogen in 1772; Priestly and Scheele, oxygen in 1771; and Lavoisier, oxygen in 1775. The latter demonstrated with Laplace, the astronomer, that respiration is analogous to combustion. Further studies were made by Lagrange, and by Magnus, who used Spregel's air pump in his experiments.

The Principle of Inoculation

Vaccination was introduced by Edward Jenner in 1796, when he applied his observations of the fact that dairy maids who had cowpox did not contract small-pox by vaccinating a country boy, James Phipps. Jenner was a country gentleman who drifted into the practice of medicine. He attended no medical school, though he studied for a while under John Hunter. He was a licensed practitioner, however. Inoculation against small-pox had been practised by many ancient peoples and the practice was introduced into England by Lady Mary Wortley Montagu in 1721. Vaccination had already been performed before Jenner by the Dorset farmer, Benjamin Jesty, in 1774; and again his doctor had done it in 1789.

The development of the microscope was of importance to medicine. It paved the way for the science of bacteriology and for the cellular theory, which is one of the fundamental principles of modern science. Its use completed the demonstration of the circulation of the blood, as discovered by Harvey in 1628. The earliest microscopist was the Jesuit Kircher, who has been described as a mathematician, physicist, optician, Orientalist, musician, virtuoso, and physician. He was born in 1602. Another early worker was Robert Hooke (1635-1703), a physician and mechanical genius. Others who did work in this line were Grew, a botanist; and Swammerdam, a naturalist. Antony van Leeuwenhoek, another naturalist, had 247 microscopes and 419 lenses, most of which he had ground himself. He was the first to see Protozoa under the microscope, and made many other important discoveries. Hooke invented a compound microscope in 1665.

The cellular theory was developed almost entirely by botanists. Robert Brown found the cell-nucleus in 1831, and Gabriel Valentin the cell-nucleolus in 1836. The greatest researches were made by Schleiden, a botanist, and Schwann, a physiologist. The latter also discovered pepsin and demonstrated that bile is indispensable to digestion. At this time, early in the nineteenth century, much progress was made toward the germ theory of disease and the microscope was further developed. The chemists Liebig and Wohler also made experiments which gave rise to the theory of the chemistry of metabolism. The latter first made urea synthetically.

Biology and Bacteriology

General biology was fostered by the epoch making treatise on the "Origin of Species" by Charles Robert Darwin (1809-1882) in 1859. Darwin started on this work in 1838 and so antedated Alfred Russel Wallace (1882-1913) who arrived at the same theory independently in 1858. The idea of evolution is, of course, the salient feature of modern science. It had been thought of by the Greeks and had been mentioned and even outlined by such thinkers as Bacon, Goethe, Lyell, and Herbert Spencer; but it was Darwin's wonderful marshaling of the facts that had the most influence on the development of the theory. Out of this grew the sciences of comparative physiology, cellular pathology, bacteriology, and parasitology—all of the utmost importance to modern medicine. A follower of Darwin was Thomas Huxley (1825-95), who was an entertaining writer and one who did much to popularize scientific essays.

Bacteriology as a science was founded by Louis Pasteur, a chemist, and Robert Koch, a physician. Pasteur was born in 1822. His whole life was one of brilliant achievements and modern preventive medicine owes more to him than to any other one man. The first of his classic studies was in 1848 and resulted in showing the conversion of dextro-tartaric acid into racemic and mesotartaric acid by means of penicilium glaucum. From these studies he became interested in fermentation and microörganisms in general. He showed in 1857 that fermentation is a vital process due to microörganisms, and not a chemical one as had been thought. He next disproved the theory of spontaneous generation by showing the value of sterilization. Lister later applied this to surgery. When the silk worm industry of France was threatened with destruction by disease in 1865, Pasteur was employed to find the cause, which he did and which proved to be a microbe, or parasite. Again, when chicken cholera, as it was called, broke out in France, he found the microbe and also accidentally discovered that attentuated cultures of it would prevent the disease. Out of this fact came preventive inoculations. Pasteur's other studies were on the

diseases of wine (1863), anthrax (1877). At the same time he worked on the chicken cholera, and rabies in 1885. He produced a vaccine for anthrax in 1881 and he, also, though several years earlier, discovered the *Staphylococcus pyogenes*, which causes boils. His principle of killing bacteria by heat is applied for the protection of all foods, as by the pasteurization of milk.

Among Pasteur's pupils was Metchnikoff, who has done important work on phagocytosis. With Roux, another pupil, in 1903-4, he first showed that the higher apes could be inoculated with syphilis. In 1905, Schaudinn, working with Hoffman, discovered the cause of syphilis, the *Spirochacta pallida*. Thus, the first steps in the control of this disease were made by two zoölogists, Metchnikoff and Schaudinn. Paul Ehrlich, who produced salvarsan, was educated as a physician, but spent most of his life working as a chemist and pharmacologist.

Public Health Work Develops

The sanitation of hospitals and the reform of nursing was due to the efforts of an Englishwoman, Florence Nightingale (1823-1910). She went to the War of the Crimea in 1854, and her work there is a matter of history. She published her "Notes on Nursing" and on her return to England was instrumental in starting a training school for nurses. Thus, a new profession was opened to women, the scope and usefulness of which needs no elaboration here.

Public health in this country has been greatly advanced by the work of sanitary engineers and non-medical sanitarians. The first course in sanitary engineering in this country was given at the Massachusetts Institute of Technology, and graduates of this course and of that of Biology and Public Health, begun in 1886, of the same college, have played an important part in the hygiene and sanitation of the United States. Water supply, sewage disposal, ventilation, vital statistics, and much of industrial hygiene have been developed by such non-medical men as W. T. Sedgwick, G. C. Whipple, C-E. A. Winslow, A. Hazen, H. F. Mills, E. B. Phelps, E. O. Jordan, S. M. Gunn, F. L. Hoffman, Irving Fisher, L. K. Frankel, L. Dublin, E. Huntington, J. B. Andrews, S. C. Prescott, and E. C. Meyer, who have been prominent in other branches of public health as well. Every medical school and college which gives courses leading to degrees in public health in this country makes provisions for non-medical men to qualify as health experts. It might be mentioned in passing that medical education in the United States owes much of its present high caliber to the studies of a non-medical man, Flexner, in 1909-11.

A few miscellaneous discoveries which have not been mentioned in any of the sections above may be inserted here. Between 1593 and 1597 Galileo invented a thermometer and Kepler first counted the pulse in 1600. Quinin was introduced as a cure for malaria in the seventeenth century by a Jesuit who obtained the bark from the natives of Peru. He used it to cure the wife of the Spanish governor and gave the drug the name of cinchona in her honor. Balsam was discovered by a Portuguese monk in Brazil about 1600. Arsenic was introduced into England in consequence of the success of a patent medicine. The Tasteless Ague Drops and Colchicum came in a similar way from the Eau Medicinale of a French officer. Iodin was discovered by a saltpeter manufacturer. The cure of scurvy is credited to Captain Cook, the explorer. Sir Humphrey Davy assisted industrial hygiene by his invention of the miner's safety lamp in 1815. The discovery of the x-ray by Roentgen in 1893 has been of great value to modern surgery. The science of eugenics owes its basis to the law of the Augustinian monk, Gregor Mendel, a principle which, while pronounced in 1865, was not given any particular attention until 1900. The further developments of this doctrine were the work of Francis Galton, who laid the foundations for the science of biometrics, which differs considerably from Mendel's law. Galton first applied the term "eugenics." Most of the drugs of recent times have been the results of experiments by chemists, an example being veronal, which was produced by Fischer in 1904. Radium, discovered by Curie, also has a therapeutic value.

Thus, it is seen that along with the vast achievements of the great physicians of all times, there have also gone many contributions to medical science by chemists, physicists, mathematicians, astronomers, botanists, naturalists, zoölogists, physiologists, philosophers, ecclesiastics, sanitary engineers, and various other types of common humanity. Science is, however, a unitary thing. All branches of it overlap. What difference does it make whether a man be a doctor of medicine, of philosophy, or of science, if he produce something of permanent value? It is the man and not his title which counts. To contribute to science and hence to civilization and humanity is the privilege and, further, the duty of all mankind.

DR. RICHARD CLARKE CABOT

Dr. Richard Clarke Cabot, professor of clinical medicine at Harvard Medical School and chief of the West Medical Service of the Massachusetts General Hospital, has been appointed Professor of Social Ethics at Harvard College. Dr. Cabot enters at once upon his new duties, at the same time continuing his present connections.

THE NEW YORK HEALTH CENTER PLAN AND MEMORANDUM*

The increase in knowledge of the medical sciences in recent years has become so great, has progressed with such rapidity, and has come to cover such a variety of subjects, that it has long since become impossible for any one man to keep abreast of all the branches of medical work. Furthermore, large experience and great technical skill and dexterity are required as never before in many lines of laboratory and clinical diagnosis of disease and in the practice of medicine.

Relation of Collateral Sciences

A wide general educational training is required of physicians, for medical science is not only closely related to but is absolutely dependent upon a knowledge of several collateral sciences, such as biology, physiology, chemistry, physics, and bacteriology; and furthermore, full knowledge of the progress in medicine is only possible if one is familiar with one or two of the modern languages. It has accordingly come about that specialization in medicine has developed to a high degree and there is now a vast difference in many cases of sickness between the results obtained in treatment by a highly qualified specialist using all the resources of medical science, and those ordinarily obtained from treatment by a general practitioner with few or none of these aids.

The complete and accurate diagnosis of disease is almost always difficult, often at best is only approximate and demands all the resources of modern medicine, including the aid of experts for its accomplishment. Experience has further shown that the best results in diagnosis and treatment can only be obtained by the coordinated efforts of a group of specialists working together. This association has come to be known as "group medicine." There is no place in the world where this kind of work has been developed to such a remarkable extent and with such signal success as at the Mayo Clinic in Rochester, Minn. There, in a small country town in an agricultural district has been built up, largely as a result of the employment of this method of practice, the most important surgical clinic in the world, the activities of which are conducted at present by more than 160 physicians and surgeons, many of them highly trained experts in the various phases of medicine and surgery and in the contributory sciences. To this place 60,000 or 70,000 people go each year.

It is not usually recognized that while medical science has made extraordinary advances during the last twenty-five years, the benefits resulting from the new discoveries are at present available, generally speaking, to a very small fraction of the population only. It is indeed in the larger centers of population and especially in connection with teaching institutions and large hospitals that the best type of modern medical practice is available. Furthermore, it is noteworthy that while this great advance is going on, in many of the smaller cities and in the rural districts for a number of reasons the conditions of medical practice are changing, not for the better, but rather for the worse. Some of the reasons for this are as follows:

(1) The number of physicians in practice in small cities or rural districts is steadily decreasing. Only one-half as many physicians are now being graduated each year from the medical schools of the country as were graduated twenty years ago, and the number of medical schools has decreased more than one-half. The quality of teaching in the remaining schools has greatly improved; but it is the general opinion of teachers of medicine that the quality of men who are taking up the study of medicine has deteriorated. The rewards in the practice of the profession are not commensurate with the long period of study required, the cost involved, and the self-sacrificing life which the practice of medicine entails.

To commence the study of medicine at the present time in New York State, a man must not only have been a high school graduate, but most have had at least two years' instruction in an institution of collegiate rank, including courses in biology, physics, chemistry, physiology, psychology, and at least one modern language. A four years' course in a medical school is then required, and at least one and often two years' internship, without compensation, in a hospital. After receiving his degree, before a graduate in medicine can undertake to practise, he must take a licensing examination before the State Board of Medical Examiners. In other words, after a man has finished the course in one of the best high schools he must continue his work for seven or eight years before he can commence to earn his living, and then he learns that the compensation in all professional positions open to physicians is totally inadequate and relatively much lower than that of other professions, and to fit himself further for a successful career by gaining the experience which is necessary for the successful private practice of medicine he is expected to serve without compensation for most of his professional life on the staff of dispensaries, hospitals, and other institutions. The medical graduate is generally fortunate if he succeeds in making his living after three to five years of practice, when he will probably be more than thirty years of age.

More than one-half of the health officers of the state of New York receive as compensation for their health work less than one hundred dollars a year. Fifty-eight districts of the state have appealed to the Health Department to send them physicians, as they were totally without medical service. In one typical rural county where there were fifty-two physicians an investigation by the State Department of Health showed that these physicians had been in practice twenty-eight years on an average, and that during the last ten years only four new physicians had commenced practice in the county. Hence, it requires little vision or imagination to see what will be the condition in that county ten or twelve years from now unless some change in the situation is brought about.

(2) Not only is medical service wanting in many districts, but trained nurses are also lacking and, where they are available it is becoming more and more impossible for the average individual to obtain or to pay for their services. Many of the trained nurses in the cities and rural districts are now receiving six dollars per day and board for twelve-hour service. This means that in case of serious illness two nurses are required and the cost is $12 a day plus the board of the nurses. When this expense is added to that of medical services, medicines, and medical supplies, a daily cost of $20, or more,

*This plan and memorandum were prepared by the State Department of Health to carry out the recommendations of Governor Alfred E. Smith of New York, made to the legislative session of 1920.

possibly $25 or $30 per day—an amount which the average person can not afford to pay.

Organization for Service

(3) Domestic servants are no longer to be obtained except with great difficulty and sometimes not at all in the smaller cities and the rural districts; and when people are seriously sick, owing to the lack of physicians, nurses, and domestic servants, it is becoming more and more imperative that if they are to receive even ordinary care they shall be removed to a hospital. The hospitals available are often inadequate and generally are not so organized as to give the best kind of medical and surgical service. Hence, the broad purpose of this Bill is to make efficient medical and surgical practice more generally available; to provide to physicians more adequate compensation for professional service, to insure better quality of medical and surgical care, and to furnish state aid so that the health centers described can be provided, their medical and surgical work can be standardized, through the state supervision, and thus a higher quality of professional service assured. To aid further in securing this end highly qualified visiting consultants are to be made available by the State Department of Health to assist local physicians in diagnosis and treatment of difficult and obscure cases, and modern laboratory facilities of all kinds, auxiliary to the service of the state laboratory are to be provided.

It is confidently believed that this plan is not only practicable and desirable but, also, that some plan of this sort will be absolutely necessary if industrial workers, inhabitants of rural districts, and the great proportion of people of moderate means are to have adequate medical and surgical care which at present they do not receive and can not command. It is further believed that the plan here set forth will improve materially the health of the districts in which it is put into effect, will contribute immeasurably to the public welfare, as well as to economic and industrial prosperity, and that its cost will be insignificant as compared with the benefits to be derived.

It should be emphasized and distinctly understood that physicians rendering service in connection with the big hospitals, clinics, laboratories, and all the health activities involved in the plan should be properly compensated; otherwise the decrease in the number of physicians and deterioration in quality of service which has already been made plainly manifest in some districts will surely continue, greatly to the detriment of the people of the state. It is self-evident that every government owes to its people not only facilities for education, but also physical resources for the prevention of disease and the treatment of sickness adequate to and approximating in quality the high standards which the progress of medical science has made available.

Would Coordinate Agencies

The enactment of this bill and the establishment of such health centres would greatly aid in the coordination of all the public health and public welfare activities of the district; would prevent overlapping of effort, promote economy in administration, and make possible the extension of an efficient health service to every portion of the district.

It would also contribute materially to the improvement and the extension of all health activities and would render them far more effective.

There is a further argument in favor of the enactment of some legislation of this nature,—*viz.*, that the funds for the initiation of this greatly needed work and its support are derived, first, from local community appropriations, and, secondly, from state aid, and their payment for services in proportion to their means by the recipients, and the moneys thus raised are actually spent in very large measure for the work, and only to a very small extent for administration, as has been the case too often in many plans for social betterment.

MEMORANDUM

MEMORANDUM as to the provision of a bill authorizing a county, city, or consolidated health district to create and maintain one or more health centers and providing state aid therefor.

Purposes of the Bill

(1) To provide for the residents of rural districts, for industrial workers, and all others in need of such service, scientific medical and surgical treatment, hospital and dispensary facilities and nursing care, at a cost within their means or, if necessary, free.

(2) To assist the local medical practitioners by providing: (a) Facilities for accurate diagnosis by a coordinated group of specially qualified physicians and surgeons, both for hospital patients and for out-patients. (b) Consultations and advice as to treatment by medical and surgical experts. (c) Clinical, bacteriological, and chemical laboratory service and x-ray facilities at moderate cost or free, when necessary.

(3) To encourage and provide facilities for an annual medical examination to detect physical defects and disease, to discover conditions favorable to the development of disease, and to indicate methods of correcting the same.

(4) To provide or aid in securing adequate school medical inspection and school nursing service, in cooperation with the Department of Education.

(5) To secure or aid in securing better enforcement of the Public Health Law and a more effective administration of Public Health activities within the area served.

(6) To provide a public health nursing service adapted to and adequate for the community served.

(7) To aid in securing the dissemination of information in regard to public health throughout the area served.

(8) To aid in securing adequate compensation for medical and surgical care rendered in hospitals and clinics, in order that efficient service may be everywhere available.

(9) To provide laboratories, group diagnosticians, consultants, and hospital facilities in the smaller cities and rural districts; to counteract the growing tendency of medical practitioners to remove to larger centers, and to attract to and to retain in the practice of medicine in these communities a larger number of qualified practitioners of both sexes.

(10) To provide medical libraries, including books, pamphlets, periodicals, leaflets, exhibits, moving picture films, and kindred educational facilities, with halls for meetings if needed.

(11) To provide hospital and other necessary resources for dealing promptly with epidemics.

(12) To reduce illness and disability among the industrial workers of the state by providing prompt and accurate diagnosis and efficient treatment for sick and injured workers and the members of their families.

(13) To coordinate public health activities within the districts.

Health Centers Provided

(1) A health center may consist of the following parts, any one or more of which parts may be established at one time with the approval of the State Commissioner of Health and the formulation of a general plan for the whole center.

(a) *Hospitals.*—The erection of new hospitals or arrangements with other institutions, or both, so that they shall form essential parts of the center. Such hospitals may include as units thereof existing or hereafter established hospitals or pavilions for the care of tuberculosis, for cases of other communicable disease, for children, for cases of maternity and mental diseases, and for other groups. Existing tuberculosis hospitals may become parts of the health center of a city or county by which they may have been established.

(b) *Clinics for Out Patients.*—These would include especially those now regarded as public health clinics, such as those for tuberculosis and venereal disease, prenatal and child welfare, mental and nervous diseases and defects, and clinics for school children, dental clinics, and also medical, surgical, and diagnostic clinics.

(c) *Laboratories.*—Clinical, bacteriological, and chemical laboratories, auxiliary to the state laboratory, and x-ray laboratories would provide services at moderate charges, or free, affording modern laboratory facilities needed in the diagnosis and treatment of disease.

(d) *District Health Service*, with a district health officer and deputy health officers in various parts of the district, such districts to be either a city or county, or a consolidation of two or more existing health districts (such consolidation to be approved by the State Commissioner of Health). The present health officers in these districts shall act as deputies during their present terms of office. In the subsequent appointments of deputies in the various portions of the districts, persons residing therein possessing the qualifications prescribed by the Public Health Council shall have preference. Each local health board shall appoint for its own town or village a deputy to the health officer of the health center district.

(e) *Public Health Nursing* service for all parts of the district.

(f) *Center for School Medical Inspection.*—Proper medical supervision and facilities to enable practitioners to provide adequate treatment for all school children showing physical defects or disease.

(g) *Headquarters.*—All health, medical, nursing, and other public welfare activities of the district which wish to utilize the center could make it their headquarters.

(2) The locations, sites, plans and initial equipment of the health center shall be subject to the approval of the State Department of Health. The State Department of Health and the State Architect shall provide model plans for such centers for any community requesting them.

State Aid to Health Centers

(1) To be granted for each hospital bed constructed or provided for under this statute. (a) For new construction and equipment of hospitals, one-half of the cost to be paid by the state, such payment not to exceed $750 per bed; and beds for the purpose of this provision to be in proportion not in excess of one to each five hundred of the population. (b) A grant of seventy-five cents per day for every free patient maintained in any hospital operated as a part of a health center.

(2) To be granted for clinics and annual medical examinations. (a) A grant for the creation of out-patient clinics equal to one-half of the initial cost of establishment, the amount to be paid by the state for this purpose not to exceed $5,000 per clinic, and twenty cents for each free patient in such clinic; one such center for each district, provided that in counties or cities or districts having more than 50,000 population there shall be not more than one health center per 50,000 inhabitants or major fraction thereof. (b) A grant of fifty cents for each free comprehensive annual medical examination made at the health center.

(3) *For the maintenance of laboratories*, a grant from the state of one-half of the annual cost of maintenance of laboratory of health center, the sum to be paid by the state not to exceed $3,000 per annum for each laboratory, and $1,500 toward the initial installation and equipment of such laboratory.

(4) *For salaries of deputy health officers*, a grant of ten cents *per capita per annum* toward the salaries of deputy health officers in health districts having less than 1,500 population, and of five cents *per capita per annum* in health districts having a popualtion between 1,500 and 3,000, in addition to such salaries as they are entitled to receive from the local treasury.

(5) The total annual grants for the construction of hospitals and clinics shall not be in excess of $2,000,000; and for the maintenance and operation not in excess of $2,000,000. Salaries and traveling expenses of consultants and experts employed by the State Department of Health, and other expenses necessarily incurred by the State Department of Health in the enforcement of this Law, shall be paid from the sum appropriated for grants toward maintenance and operation of health centers—this sum not to exceed $250,000 *per annum.*

General Provisions

The District Health Officer may be the superintendent of the hospital and general director of health of the district and of the hospital and medical activities connected therewith. The qualifications for district health officers, deputy health officers, superintendents of hospitals and medical activities, chiefs of clinics, and other medical officials and nurses shall be fixed by the Public Health Council, and their appointments be subject to the regulations of the State Civil Service Commission.

The work of all health centers, hospitals, clinics, and district laboratories connected therewith shall be inspected and standardized by the State Department of Health, and the state grants shall be paid only on the written approval of the State Commissioner of Health.

Provision shall be made for occasional or periodic consultations or clinics at the health centers by specialists in medicine and surgery to be furnished through tho State Department of Health, and wide previous public announcement of these clinics and consultations shall be made. At these consultations and clinics health officers and physicians may bring their patients for assistance in diagnosis and for advice as to treatment. Fees received from these consultations for the state service shall be credited to the hospital or center where the service is rendered.

The health center laboratories shall be under the supervision of the director of the State Health Department Laboratories, in order that their work may be maintained at a high level of efficiency; and the facilities of the state laboratory service shall be available to supplement those of the laboratories of the health centers.

The salaries of the medical and surgical staff, the fees for medical and surgical care, and the conditions for free service in the hospitals and clinics, shall be determined by the Board of Managers. The method of appointment and composition of such boards of managers of the health centers and hospitals to be provided for in this bill.

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L. HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

THE LANGE COLLOIDAL GOLD REACTION

IN 1912 Lange first presented the colloidal gold reaction. Since then the test has been applied by an increasingly large number of laboratory investigators until at the present time it has become a routine part of spinal fluid examination in any well regulated clinical laboratory. However, even after these eight years of trial there still remain points of discussion both regarding the technical application of the test and the clinical interpretation of the results of the test. Warwick and Nixon[1] present a complete study of the reaction and a review of the literature bearing on it. Their work represents the results of an analysis of 800 spinal fluids from 408 patients and a review of some fifty-eight articles in the medical literature. Like previous investigators, Warwick and Nixon lay great stress on the preparation of a satisfactory solution, and say that once a satisfactory solution is obtained it appears to be very stable and, if kept corked in a dark cupboard, will remain satisfactory for months. Anyone wishing to try out the test should read the technical portion of this article because of its valuable review of various modifications of technic proposed as well as the careful description of their own method.

A positive reaction, if present at all, begins to appear immediately and is complete in from eight to twelve hours. All syphilitic curves appear the same at first, with the typical paretic curve developing later. These curves are complete only after twelve hours. On the other hand, the test showing no beginning color changes at the end of one-half hour may as well be discarded, as none will appear later. They use the usual methods of charting their reaction.

Clinical interpretation of their results was based on the grouping of cases under seven divisions: (1) *dementia paralytica*, (2) *tabes dorsalis*, (3) cerebrospinal syphilis, (4) multiple sclerosis, (5) cord and brain tumors, (6) meningitis, and (7) miscellaneous group. In *dementia paralytica* the typical curve was obtained in 94.5 per cent of cases, which was higher than the globulin tests, the cell count, or the cerebrospinal fluid Wassermann. In their series only one non-syphilitic case, other than multiple sclerosis, gave a typical paretic curve and that was a case of brain abscess subsequently verified by operation. "Of the spinal fluid reactions in *tabes dorsalis*, the colloidal gold is definitely the most valuable," being positive in 74 per cent of the cases as against 53 per cent Wassermann, 46 per cent cell count and 44 per cent globulin. In nine instances it was positive when the other tests were negative. In several patients given provocative treatment the colloidal gold reactions were found to be the first to become positive. In cerebrospinal

1. Warwick, Margaret, and Nixon, Charles E.: A study of the Colloidal Gold Reaction and Its Clinical Interpretation, Arch. Int. Med, xxv:119, Feb. 1920.

syphilis there is an even greater disproportion of colloidal gold tests over the other cerebrospinal fluid tests. In multiple sclerosis the test simulates in its results that found in paresis, but in the experiments of the authors the curve was more frequently in the second zone. In their brain and spinal cord tumors they believe that a curve in the third zone, especially unaccompanied by meningitic symptoms, is of diagnostic value as indicating meningeal irritation, as shown in tumors of the brain or spinal cord; and of their fourteen cases verified by operation or necropsy, such a curve was present in eight cases. This was of special value when found in these conditions accompanied by negative or faintly positive globulin tests and a low cell count, because meningitis, which has a similar Lange curve, is accompanied by a markedly positive globulin test and a high cell count.

In treated cases they found that the spinal fluids gave little or no indication of change of reaction, while the patient showed marked clinical evidence of improvement. This justifies the assumption that the colloidal gold curve, while of very definite value in initial diagnosis, is very often practically useless in treated cases, either for diagnosis or prognosis, and has been found not to parallel clinical symptoms. One patient who was receiving intensive treatment gave practically the same colloidal gold curve for three years.

The summary which the authors make of their rather elaborate study includes the following:

The colloidal gold test is the most delicate of the routine spinal fluid reactions.

It does not replace any other test, but on the other hand is of independent value and is of special value in early diagnosis of neurosyphilis.

The various curves are not specific.

Patients with no involvement of the central nervous system or who are non-syphilitic give no colloidal gold curve.

Clear cut clinical cases of *tabes dorsalis* may show all the spinal fluid reactions negative both before and after treatment.

Other conclusions have already been discussed in the body of this review.

Kellert's[2] article gives the experience of the Bender Hygienic Laboratory in Albany, New York, for the past four years, and it is the chief object of this paper to record the few instances of false reaction. In their negative tests embracing seventy-five fluids from a variety of conditions there were three which gave positive Wassermann reactions and two from patients whose blood yielded positive Wassermann reactions. In his syphilitic cases fairly constant reactions were obtained, although he claims that in 22 per cent of the fluids the curves could not be interpreted, being either slight or irregularly exaggerated. He believes that the method is more sensitive than the Wassermann test, but that there is much greater possibility of error. [The editor notes that Kellert makes no attempt to differentiate by the test paresis, tabes, and cerebrospinal syphilis. This, he believes, may account for some of the difficulty of interpretation. Furthermore, no mention is made of multiple sclerosis, which, as has been shown by Warwick and Nixon, may give marked syphilitic curves.] In their tuberculous fluids, forty in which the tentative clinical diagnosis of tuberculous meningitis was made gave positive colloidal gold curves. Subsequently, seven of these were excluded as non-tuberculous. Twenty-seven cases of acute meningitis were examined and 74 per cent gave curves suggesting acute meningitis. On the whole, they found the reaction confirmatory of the clinical diagnosis in approximately 80 per cent of the cases. It apparently is most valuable in cerebrospinal syphilis.

Like Warwick and Nixon, he believes the colloidal gold reaction is valuable as an additional or confirmatory test; that its greatest value is in the syphilitic diseases of the central nervous system; and that it may serve to differentiate between tuberculous and other forms of meningitis. He emphasises that cerebrospinal fluid contaminated with blood in small quantity frequently gives luetic reactions and that positive results unconfirmed by other tests are of only slight value. Unlike Warwick and Nixon, he believes that the Wassermann reaction and the cytological examination of the spinal fluid are of greater value than the colloidal gold test.

EDITOR.

2. Kellert, Ellis: Observations on the Colloidal Gold Reaction with Cerebrospinal Fluid, Am. Jour. Med. Sci., clix, 257, February, 1920

ACUTE EMPYEMA—A BRIEF REVIEW OF RECENT DEVELOPMENTS

THE huge incidence of empyema following pulmonary diseases in the epidemics of the last few years, the high mortality have stimulated a large amount of investigation of the etiology and treatment of this complication. Many of our former views have undergone modification or a complete change.

Graham and Bell[1] were the first to overthrow our conceptions or misconceptions of intrathoracic pressure. We knew that the mediastinum is not a rigid wall separating the two pleural cavities, but it remained for them to show how mobile a structure it really is and how readily it responds to any change of pressure in either of the cavities. They believe that any change of pressure on one side will immediately, provided no adhesions are present, be transmitted to the other side as well. An open pneumothorax on one side

1. Graham and Bell: Am. Jour. Med. Sc., December, 1918.

means an equal change of pressure on the other and a corresponding collapse of the so-called sound lung. The amount of collapse of the lung in an open pneumothorax varies proportionately as the size of the actual opening in the chest wall compares to the size of the trachea. They have evolved a mathematical formula for the largest actual opening in the chest wall possible without death. The size of this opening varies according to the vital air capacity of the patient. When the vital air capacity is greatly diminished as in penumonia, for example, the size of the opening which can be made is greatly reduced.

These facts explain the results found clinically in practically all the camps; namely, that a patient whose breathing space is already diminished as a result of his pulmonary infection can not withstand the additional burden of an open pneumothorax. As the pneumonia clears up and his vital air capacity increases, the patient becomes more and more able to compensate the interference with respiration resulting from a pneumothorax. After adhesions have formed, which tend to stabilize the mediastinum, the dangers from a thoracotomy are reduced to a minimum.

The etiology of empyema is a mooted question. Some observers believe that there is a hemotogenous infection of the visceral or parietal pleura, resulting first in an exudative pleurisy and then in empyema; others maintain that there is a direct extension from the involved lung tissues into the visceral pleura. Moschcowitz[2] in a recent article claims to have found evidence at autopsy confirming the theory that empyema follows rupture of a small subpleural pus pocket in the lung through the visceral pleura directly into the pleural cavity.

The progression of events, at any rate, is (1) a pleurisy, (2) a serous or a serosanguinous fluid —which in many of the severe cases developed with remarkable rapidity—a gradual increase in this fluid of bacteria and cellular elements, and, (3) finally, provided the patient lives long enough, the development of frank pus.

Clinically, the aspect varied greatly according to the type of bacteria found and according to the strain of the organism. The streptococcal empyemas following the influenzal infections were extremely fulminant; the pneumococcal empyemas were much more benign. In all the epidemics the virulence of the organism seemed to diminish so that, towards the end, even the streptococcal empyemas offered a more favorable prognosis. Miller[3] feels that were we to go through another epidemic similar to the kind we had at the various army camps, with our present knowledge of treatment our mortality rate might be very much the same.

As regards the diagnosis of effusion, all writers are unanimous in proclaiming that the usual physical signs of impairment of percussion, diminution or absence of tactile and vocal fremitus, and absence of breath sounds, alone can not be relied upon. The x-ray has proved a most valuable assistant. Exploratory aspirations are indispensable. Gray[4] suggests that the best way to make an early diagnosis of effusion is to suspect every pneumonia guilty unless proved innocent.

At the beginning of the epidemic of the winter 1917-1918 cases were operated early, as had been the custom heretofore. In some camps operation was performed as soon as the fluid was discovered, in others as soon as the fluid was found to contain bacteria. The usual type of operation was rib resection and the usual outcome was death. It soon became apparent that this procedure was radically wrong. It was evident that a toxic patient, fighting for air, could not withstand the shock of an open pneumothorax. Gradually reports showing improved results by delaying operation, convinced us of our error, and brought about a change of procedure. The mortality became lower, the Empyema Commission[5] published its monumental work and we gradually arrived at our present conceptions. The Empyema Commission advocated early and repeated aspirations. It advocated drainage without the shock of a wide open pneumothorax. If the fluid became frank pus, a rib resection was recommended, adhesions having been formed by this time. As after-treatment the Commission advocated, along with the usual hygiene, exercises and the use of a blow-bottle or some other device to help expand the collapsed lung. Bartlett[6] makes the practical suggestion of connecting a mercury manometer, such as used in blood pressure machines, for example, to the blow apparatus, thus stimulating the patient's interest by allowing him to observe any improvement.

Aspiration is performed with the usual needles. Suction is induced by means of a pump, a faucet-suction apparatus, a vacuum created in a bottle by means of combustion or syphonage. For small quantities of fluid a large glass syringe will prove to be the simplest and most efficacious instrument. Aspiration is a diagnostic procedure and as such is indicated whenever the presence of fluid is suspected. The presence of the fluid established, aspiration is indicated to relieve re-

2. Moschowitz: Surg. Gynec. and Obst., January, 1920.
3. Miller: Discussion at Chicago Medical Society, Bull. Chicago Med Soc., January 31, 1920.
4. Gray: Bost. Med. & Surg. Jour., 1919, clxxx, 475.
5. Preliminary Report of Empyema Commission: Jour. Am. Med. Assn., August 3 and 10, 1918.

spiratory or cardiac distress, pain, a rise in temperature or continuance of fever, whenever these are due to the effusion. Aspiration should be repeated as often as these indications arise. If the fluid re-accumulates rapidly continuous drainage should be resorted to, by means of Diedrich's[7] or similar methods. By the time the fluid has become frank pus adhesions will have formed, so that a more radical procedure such as rib resection can be undertaken.

Following the publication of the good results obtained simply by repeated aspirations, Diedrich, Wright, and others brought forward methods for continuous drainage of the chest without producing an open pneumothorax. In the Diedrich method the chest wall is pierced between the ribs by means of a trocar; a small rubber tube is inserted through a lateral opening into the sheath of the trocar after the obturator has been withdrawn. The trocar is now withdrawn, leaving the tube in the chest wall. The tube can be connected to a negative pressure apparatus, or simply attached to a long rubber hosing which is allowed to hang over the side of the bed, the end being submerged in a bottle of water. The chest is irrigated and flushed out through the tube. Good results have been reported by using Dakin's solution to irrigate, and also to inject a quantity of Dakin's solution at two-hourly intervals, the amount injected not to be more than 100 cc., or, in small cavities, about one-half or one-third the contents of the cavity.

One of the requisites of the Carrel-Dakin treatment was "pooling." The solution was not to drain off immediately but was permitted to form a pool to allow the solution to remain in longer contact with the infected tissue. For this reason many of the advocates of the intra-thoracic Carrel-Dakin method advised a small chest opening, plugging this opening with gauze. This in itself, in the light of subsequent research, would account for the marked success of this method. Stewart,[8] working in New York at the Rockefeller War Hospital, treated his cases along the following lines. A small incision was made through the chest wall, with or without rib resection. Through this incision several Dakin tubes were inserted, each tube threaded on a silver wire, gauge 24-27, which was of sufficient plasticity to retain its shape, and then spread the tubes fan like over the entire interior of the cavity. In this manner fluid, when injected, came into contact with every portion of the cavity wall. The chest was irrigated until the fluid returned clear. A gauze damming was placed around the tubes, and the skin protected with vaselin strips in the usual manner. Dakin's solution was injected every two hours, the amount being about 100 cc., or, in a small cavity, about one-half to one-third the contents of the cavity. The dressings were changed every twenty-four hours, the tubes tested and changed if necessary. During the dressing while the cavity was irrigated the position of the patient was changed so as to facilitate a thorough flushing. The cases were controlled by means of bacterial counts, and when the "sterile" stage was reached—one organism to every five fields—the opening was closed by secondary suture.

If frank pus developed adhesions could be surmised and an open pneumothorax made with little fear of producing shock.

In these cases the consensus of opinion favors a large opening, a resection of a part of one or more ribs. The opening should be made whenever possible in the most dependent portion of the empyema cavity. The Carrel-Daken treatment here has according to most authors given brilliant results.

One of the arguments in favor of an intercostal thoracotomy as against rib resection, is that no osteomyelitis develops from cut surfaces of bone. In many instances this osteomyelitis is the cause of prolonged drainage and sinus formation. Stevens[9] claims that recurrences are more apt to occur if a chest is allowed to close while cavities containing air still remain. Others[10] do not agree with this, provided the cavity has once become sterile. Premature closure of the chest wall by secondary suture usually leads to a reopening and a continuance of the drainage. There is a possibility of multiple cavities.

A word as regards the anesthetic. Local anesthesia has been found to be the anesthetic of choice. The anatomy of the chest wall lends itself well to this method. The intercostal nerves are easily blocked. Some surgeons prefer to block the nerves near their origin from the spine while others block nearer the site of operation. For larger procedures it is advisable to block the intercostal space above and the intercostal space below the spaces in which the operation takes place. For thoracotomy without rib resection simple regional infiltration is the most satisfactory method. Very little anesthetic is required. A well administered local anesthesia, together with careful gentle operative technic, will suffice in practically every case of acute empyema. General anesthesia is poorly tolerated.

6. Bartlett, Willard: The After-Treatment of Surgical Patients. C. V. Mosby & Co., 1919.
7. Diedrich: Surg., Gynec. and Obst., April, 1919.
8. Stewart: Med. Rec., New York, August 10, 1918.
9. Stevens: Jour. Am. Med. Assn., September 13, 1919.
10. Ransohoff, Jos.: Empyema at the Cincinnati General Hospital during the Influenza Epidemic, Jour. Am. Med. Assn., 1920, lxxiv, 2380.

THE AUTONOMIC NERVOUS SYSTEM AND DISORDERS OF THE STOMACH

By HOMER WHEELON, A.M., M.D., and J. EARL THOMAS, M.D., Department of Medicine, Bethesda Hospital, St. Louis, Mo.

STATEMENTS relative to the functions of the stomach either in health or disease should be made with hesitancy. Previously accepted theories are gradually giving way to new data. Conflicting evidence relative to the stomach fails to grow less. The physiologist, gastrologist, endocrinologist, and radiologist are still at variance with one another. Apparently the only thing in common among this group of workers is the stomach itself. No doubt the observations made upon the functions of the stomach by various means are correct for those particular modes of procedure. To a great extent interpretations are influenced by the "personal equation," hence data are open to explanations from different points of view. The theories of Pavlov[1] have gradually diminished in importance. The theory of "the acid control of the pylorus" as evolved by Cannon[2] at present is not sufficiently strong to withstand the more modern tests of the physiologist and the clinician. Just now the organs of internal secretion, plus or minus their normal function, are being heralded as the cause of normal and abnormal cell functioning. Truly, experimentation and observations have far outstripped evaluation and coordination, at least, in so far as concerns the data upon the function of the stomach. With so much confusion still existing as to the normal function of the stomach it is no wonder that functional pathology makes but little progress.

A Correlation of Observations

It is not the purpose of this article to offer new methods of study or to attempt the evolution of a new theory. A correlation of certain observations, however, seems to be of sufficient interest to warrant discussion. When it is considered that the symptoms, signs, and indications of disease represent deviations from the normal, the need of a more sound understanding of the normal functioning of organs becomes apparent.

It is necessary to determine three factors in order that the function of an organ be properly understood: (1) The properties of the physiological unit of the organ, namely, the cell; (2) the nutritional factors related to the cell; and (3) the influence of nerves upon the nutrient channels and the organ as a whole.

Normally, muscles respond best to nerve impulses delivered to them from the central nervous system. However, experimental evidence has shown that muscle cells of all types possess independent irritability and contractility; hence motility, as demonstrated by muscle, must be considered a myogenic property. It, therefore, follows that the nerves are supplied to contractile tissue for the purpose of controlling the degree of their action, that is, the nerves influence a regulatory power over muscular activities. The higher the degree of muscle development the more dependent upon the nervous system these cells become for coordination and sequence of movement.

Nerve Impulses and Secretion

It is still a disputed question as to whether or not secretory cells depend upon the reception of nerve impulses to demonstrate their characteristic properties. On theoretical grounds it would seem justifiable to assume that secretory cells manifest their peculiar functions because of their structure and high degree of differentiation, the nerves acting, as in the case of muscle, only as regulators of function. Granting that secretory cells do go into action only upon the reception of nerve impulses, there are still to be considered the vascular changes which make possible the delivery of fluid material to the gland. Secretory glands in an active state demand an increased supply of blood, and this increase in supply can only be delivered because of changes in the vascular apparatus. Such vascular changes are directly under the control of the autonomic nerves, the augmentors and inhibitors of the vasomotor system. With these points in mind the normal function of the stomach may be considered the result of intrinsic properties of motility and secretion of gastric cells, vasomotor changes sufficient to supply nutrition to and elimination from the cells, and a properly balanced nerve supply. Hence organic disturbances of any one of these factors will of necessity bring about alterations in the mass action of the stomach.

The stomach is innervated with fibers from two sources, the bulbar autonomics coursing by way of the vagus nerves, and the sympathetics by way of the splanchnic nerves. These fibers may be classed as extrinsic nerves to the stomach; they are known to carry afferent fibers to and afferent fibers from the stomach.[1 3 5 23 41]

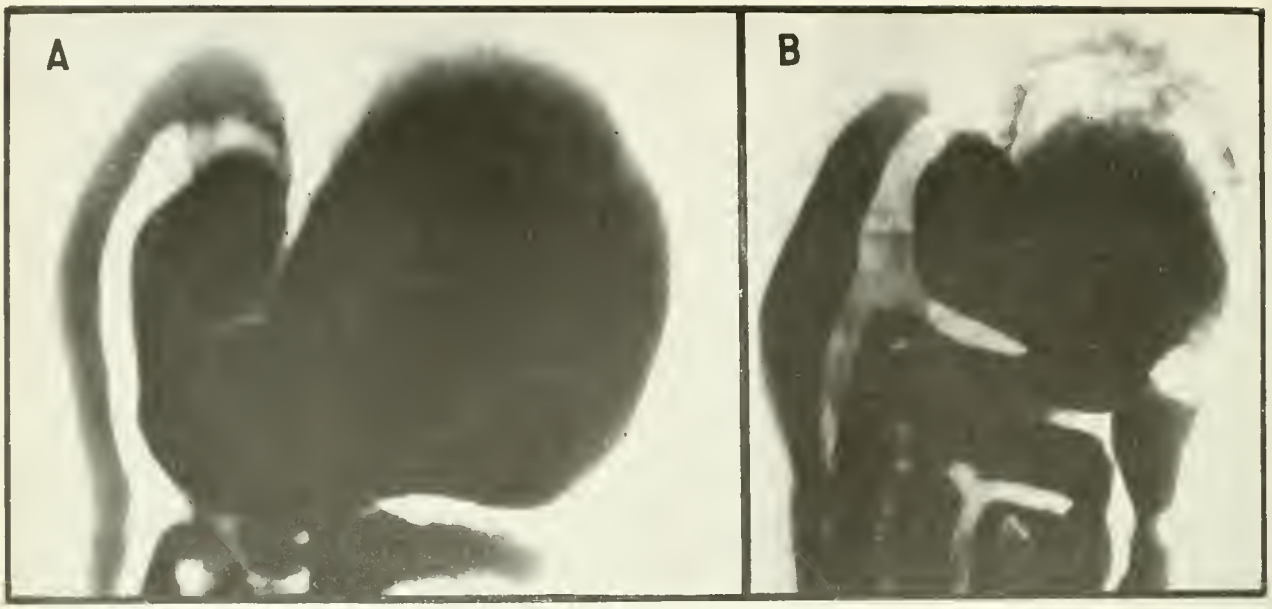


Fig. I. Radiogram of the stomach and small intestine of the dog.
A. Radiogram taken twenty minutes after a barium meal.
Note size and position of the stomach and the degree of transit of material through the duodenum.
B. Radiogram showing the effects of adrenalin upon the tonicity of the stomach and small intestine at a time when the vagus was being excited. Taken immediately following Fig. II C.

Experimentation has shown quite conclusively that, in general, the fibers received by the stomach from the vagus are excitors to motion.[5 41 47] Stimulation of the peripheral end of the vagus nerve may exercise varying effects on the stomach wall and on its sphincters, depending upon the type of organism studied. In the normal animal stimulation of the peripheral end of the severed vagus, as a rule, causes strong contractions of the esophagus as well as of the cardiac end of the stomach and sphincter. After the administration of small amounts of atropin stimulation of the same nerve will occasion inhibition of the esophagus and dilation of the cardiac sphincter.[15 24 26 27 39] On both cardiac and pyloric portions of the stomach the vagus exercises inhibitory as well as augmentory effects.[27 35] So far as concerns the musculature of the fundus or body of the stomach, the most usual effect is an inhibition during stimulation of the vagus succeeded by an augmentation of tonicity following the removal of the stimulus. If the vagus is excited a number of times the tonus of the muscular wall augments with each stimulus. Stimulation of the vagus also causes inhibition of the pylorus, followed by contractions.* This inhibition, however, may be very short and in certain cases absent, so that during the excitation the inhibition is followed by a series of large rhythmic contractions.[27] The prevailing motor effect of the vagus, therefore, is an augmentation of tone of the musculature of the stomach and an increased peristalsis in the pyloric portions. (Figs. I and II.)

The sympathetic fibers coming through the splanchnics are usually considered as inhibitors to the stomach, especially in the higher forms. When stimulated, they bring about a reduction in the tonus and contractile power of the stomach and possibly an inhibition of the pyloric sphincter. In certain forms the sympathetics, when stimulated, cause marked contractions to occur in the pyloric and prepyloric portion of the stomach, hence the motor supply of the stomach as a whole may vary in different animals.[5 7 8 9 12 29 35 37 40 49 50]

Stomach Essentially Autonomic

It appears that the orderly movements of the stomach are merely regulated by the opposing set of nerves, the stomach itself being essentially an autonomic organ. The excised stomach, when kept in warm saline solution, executes regular movements which, if not identical with those observed under normal conditions, have at least an orderly sequence.[5 18] Also, gastric digestion may proceed quite normally both as regards secretions and movements following section of the extrinsic nerves. Severance of the vagi alone results in the abeyance of gastric action for some time, and when peristalsis reappears the contractions are at first shallow. However, after digestion is well started the vagus nerves can be severed without altering either the nature of gastric peristalsis or the rate at which food leaves the

*Certain observations soon to be reported indicate that the primary response of the pylorus to effectual stimulation of the vagus below the heart is a strong contraction. This is followed by an inhibition (loss of tone) of short duration after which tone is built up to the normal by a series of powerful rhythmic contractions.

stomach.[5] Gastric tonus once established at the beginning of gastric digestion is self supporting and, like the "psychic secretions," as shown by Pavlov, maintains itself because of local mechanisms. However, following the primary loss of tone because of severance of the vagi, intrinsic mechanisms are sufficient to build up a compensating tone strong enough to render the stomach so contracted that the reception of only a small amount of food is required to set up active peristalsis. The inhibitory impulses delivered to the stomach by way of the vagi appear to exert their influence only when gastric tonus (vagus excitation) has developed a considerable pressure in the stomach. Hence, a high degree of gastric tonicity may be reduced because of inhibitory impulses from the vagus sufficiently great to accommodate the presence of new food delivered to the stomach by way of the esophagus.[5] If the vagi are cut, this phenomenon fails to take place. On the other hand Elliot demonstrated that the administration of adrenalin resulted in a maximal loss of gastric tone and peristalsis.[1-] (Figs. II-B and IV-B.) The same phenomenon occurs following direct stimulation of the sympathetics to the stomach. It may, therefore, be concluded that the sympathetics act as inhibitors of gastric tone and peristalsis. Probably these nerves exert a constant influence for the reason that gastric peristalsis and the rate at which the stomach empties are more nearly normal when all of the extrinsic nerves of the stomach are severed, than when the vagi are cut and the splanchnics left intact.[5] The work of Kuntz adds weight to this contention. He concludes from his histological studies that the normal control of the digestive functions is exercised primarily by local reflex arcs. The general control exercised by extrinsic nerves is largely tonic in character.[2] (Fig. 1.)

Gastric activities are much less dependent upon the control of the central nervous system than, for instance, those of the esophagus. Indeed, they are better marked when the extrinsic nerves are severed. The presence of food in the stomach is sufficient to excite gastric action when other than local reflex action has been excluded.[1 18 33] As Dixon has shown, cessation of orderly movements of the stomach is only to be accomplished following complete paralysis of both the intrinsic and extrinsic nerves. Therefore, *the stomach may be regarded as an autonomic organ influenced to cooperative activity because of the intergrative action of the central nervous system acting through the vagus and splanchnic nerves.*

The Central Nervous System

Through the action of the extrinsic nerves the stomach may be influenced favorably or unfavorably by conditions directly or indirectly affecting the central nervous system. Wertheimer[50] has shown that stimulation of the central end of the severed sciatic or vagus nerve may cause reflex inhibition of the tonus of the stomach, this being due, as he believes, to an excitation of the sympathetic centers.

Doyon[10] confirmed the results of Wertheimer in cases in which the movements and tonicity of the stomach were first increased by the action of pilocarpin and strychnin. Stimulation of the central end of an afferent path may also give rise to inhibition of gastric movements because of reflex stimulation of inhibitory fibers in the vagus.[50] Cannon[5] has shown that all movements of the stomach cease as soon as experimental animals show signs of anxiety, rage, or distress, condi-

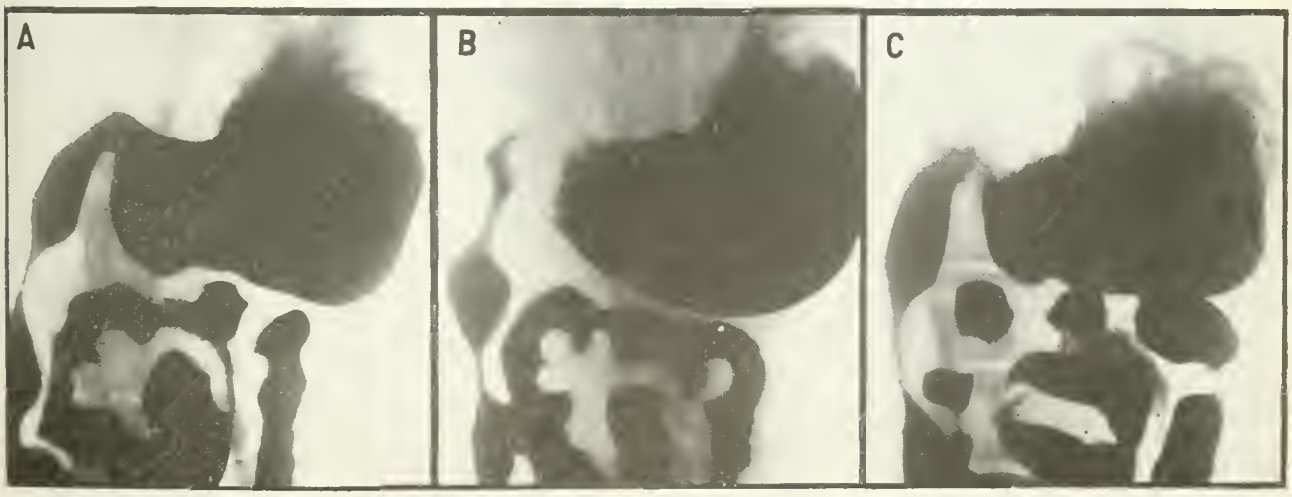


Fig. II. Radiograms of the stomach and small intestine of the dog during stimulation of the vagus nerve.
Note degree of tonicity in stomach and segmentation of small intestine; also, the degree of activity of the pylorus and duodenum. The great diminution in the size of the stomach is the result of active gastric motility during vagus stimulation. Figs. II and III are from the same animal.

tions which are equivalent to sympathetic nervous activity. Psychic states, trauma, asphyxia, and vascular changes also may indirectly influence the processes of gastric digestion. May,[35] for instance, believes that any effect produced by stimulation of the splanchnic nerves is probably due to the simultaneous influence on the vascular supply of the organ; the blood vessels being constricted, an artificial anemia is produced which in itself is sufficient to account for diminished activity. More recently Smith[46] has shown that strips of the stomach (cat and human) may show relaxation following the application of adrenalin, or relaxation of some parts and constriction of others (guinea-pig, rabbit, and dog). The reaction of the sphincters to epinephrin was always that of contraction. The latter observation is in accord with the theory of sphincter innervation as evolved by Gaskell[14] from the embryological standpoint. More definite information concerning the nervous control of the pylorus is greatly to be desired.

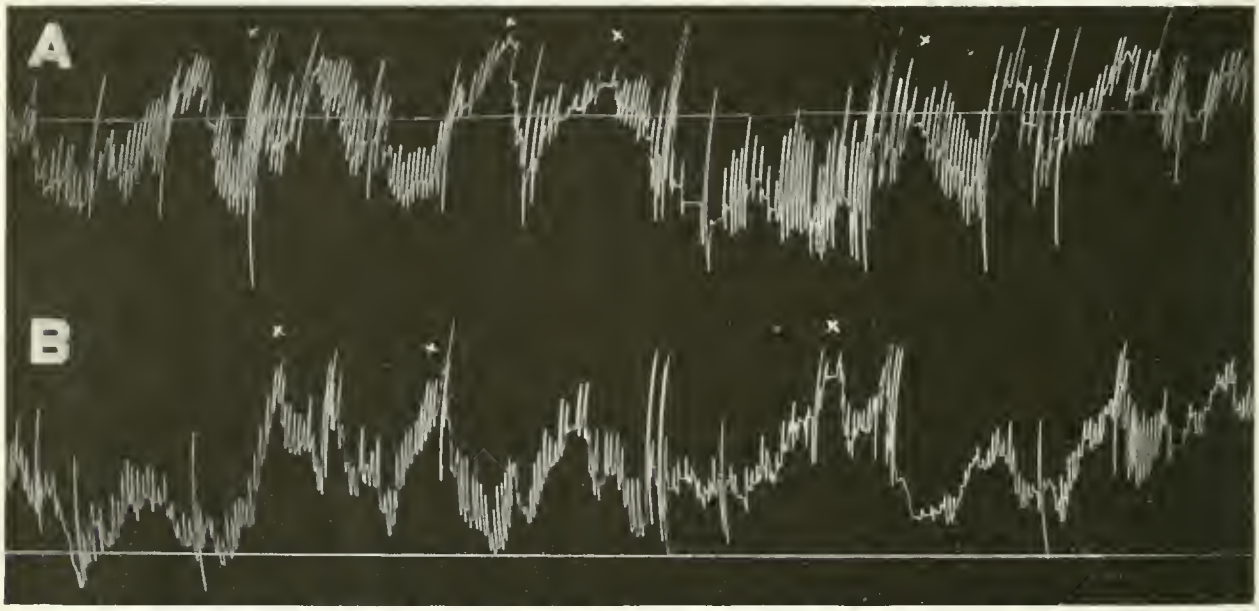


Fig. III Graphic record, ballon method, of stomach contractions of patient suffering from hyperthyroidism.
A.—Tracing made one and one-half hours after the noon meal.
B. Tracing made one hour later, following the ingestion of a cup of cocoa.
Note that the type of contractions are the same in each case and that the degree of tonicity varies greatly. Radiographic examination demonstrated heavy peristalsis and marked changes in tonicity. There were no structural changes. Points marked x appeared synchronous with pain in the stomach.

Muscular Action and Secretion

Influences that alter the action of gastric musculature also affect the function of the gastric secretory cells. Carlson[6] has shown that these cells are continuously secreting but, as Pavlov has shown,[14] the secretion of gastric fluids is greatly augmented because of the reception of nerve impulses over the vagus. On the contrary, excitation of the splanchnics reduces secretory activity, probably as much because of vascular changes as from any direct action upon the glands. If a hungry animal is tempted with the sight of food there is a flow of gastric juice after a latent period of five to seven minutes. Severance of the splanchnics has no effect on this "reflex secretion." However, such a reflex does not occur after division of the vagus nerves below the cardiac branches. Therefore, secretory fibers for the gastric glands run in the vagi. It is also probable that the vagi carry impulses which inhibit gastric secretion. Even following severance of all nerves which connect the central nervous system with the stomach the presence of food in the stomach is sufficient to excite secretory activity. Hence, as Howell[20] suggests, "one must distinguish between *nervous secretion*, due to the action of the secretory fibers in the vagus, and a *chemical secretion*, due to the stimulation of the hormones produced b ythem." The latter type of secretion has been shown by Edkins[11] to follow the injection of decoctions of the pylorus into the circulation, which leads to the conclusion that the gastric glands, while normally under nervous control, are also capable of being locally stimulated through the peripheral ganglia of the gastric wall or the chemical action of the products of digestion absorbed into the blood stream.

If the above physiology is true, then what shall one expect to find as the result of altered functionings of the nervous control of the stomach? Theoretically, an over action of the excitatory fibers of the vagus will lead to an increased activity of the stomach, or a condition of hypermotil-

ity, increased tonicity, and hypersecretion along with gastric spasms. Such a picture is often seen associated with gastric ulcers[22] and just as often no ulcer is demonstrable. Not a few operations for gastric ulcer have been performed upon sufferers of luetic gastric crises. However, gastric ulcers and luetic crises may occur simultaneously; also, gastric ulcers have been sought in cases ultimately found to be suffering from toxic goiter. It follows that the symptoms of gastric ulcer may be present without any indication of organic trouble in the stomach and we must go further back than the ulcer itself and determine what functional alterations antedated the development of the organic disturbance. On physiological grounds the gastric symptoms of ulcer must be considered as due to alterations which favored bacterial invasion at a weakened point.

Are we still justified in considering the etiology of hyperfunction of the stomach, with or without ulcer, to be a "neurosis" of the vagus or the result of an irritating ulcer? If, as indicated, the normal action and quiescence of the stomach are dependent upon the integrity of the organ's nerve supply in conjunction with the secretions and products of other viscera, then any interference with this relationship might be followed by nutritional defects located in the region of greatest anemia or where muscular contractions are excessive.[44] Hence a gastric ulcer probably should be considered as a secondary or incidental lesion, the result of "trophic" changes. On the other hand, gastric spasms and hour-glass contractions possibly should be considered the result of motor responses to definite gastro-intestinal irritation which setting up afferent impulses (vagal) result in cramp-like contractions in the musculature of the stomach and at the same time give rise to localized or diffuse referred pain in the region of the epigastrium.[3 23 30 36 45] Such spasms may be likened somewhat to hunger contractions which, as Carlson[6] has shown, give rise to hunger sensations or symptoms of distress. Irritation of an eroded surface by gastric acid, or tension by adhesions, is sufficient cause to excite painful stimuli from the region of an ulcer. Such visceral pains are conveyed through the vagus and are of the deep pressure sensibility (tension) type allied to Head's[3] protopathic system. Hypermotility and hypersecretion probably always antedate the appearance of an ulcer, but such findings do not necessarily mean that an ulcer is present, for in tabetic crises we find that similar conditions exist, probably because of an involvement of the bulbar autonomic nerves.[25]

Activity of Sympathetic Nerves

Physiologically, an increased activity on the part of the gastric sympathetic nerves would lead to a marked degree of vasoconstriction in the visceral vessels and consequently a reduction in the tonus and motility of the musculature. A spasm or maintained hypertonicity of the arterioles would in time result in an ischemia of the mucosa, which in turn would be followed by superficial necrosis and possibly an ulcer. Such a picture is commonly met with in the clinical association of stasis and hypotonicity of the

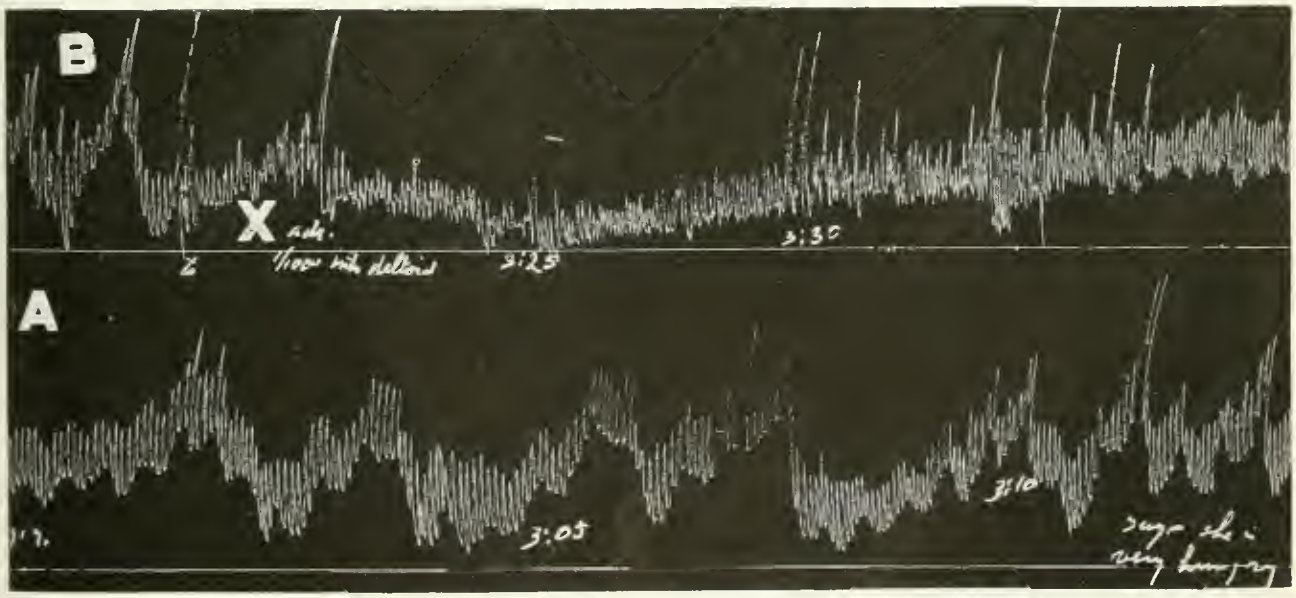


Fig. IV. Graphic record, balloon method, of stomach contractions of patient suffering from vague abdominal pains.
A.—Shows gastric movements four hours after meal.
Note variations in tone and type of contractions. The patient complained of being hungry.
B.—Trace showing the effects upon gastric activity, following the injection of ½ cc., 1-1,000 adrenalin into the deltoid muscle.
Note the drop in tone and cessation of peristalsis. Radiographic examination showed delayed emptying time, increased peristalsis, and adhesions about the descending portion of the duodenum.

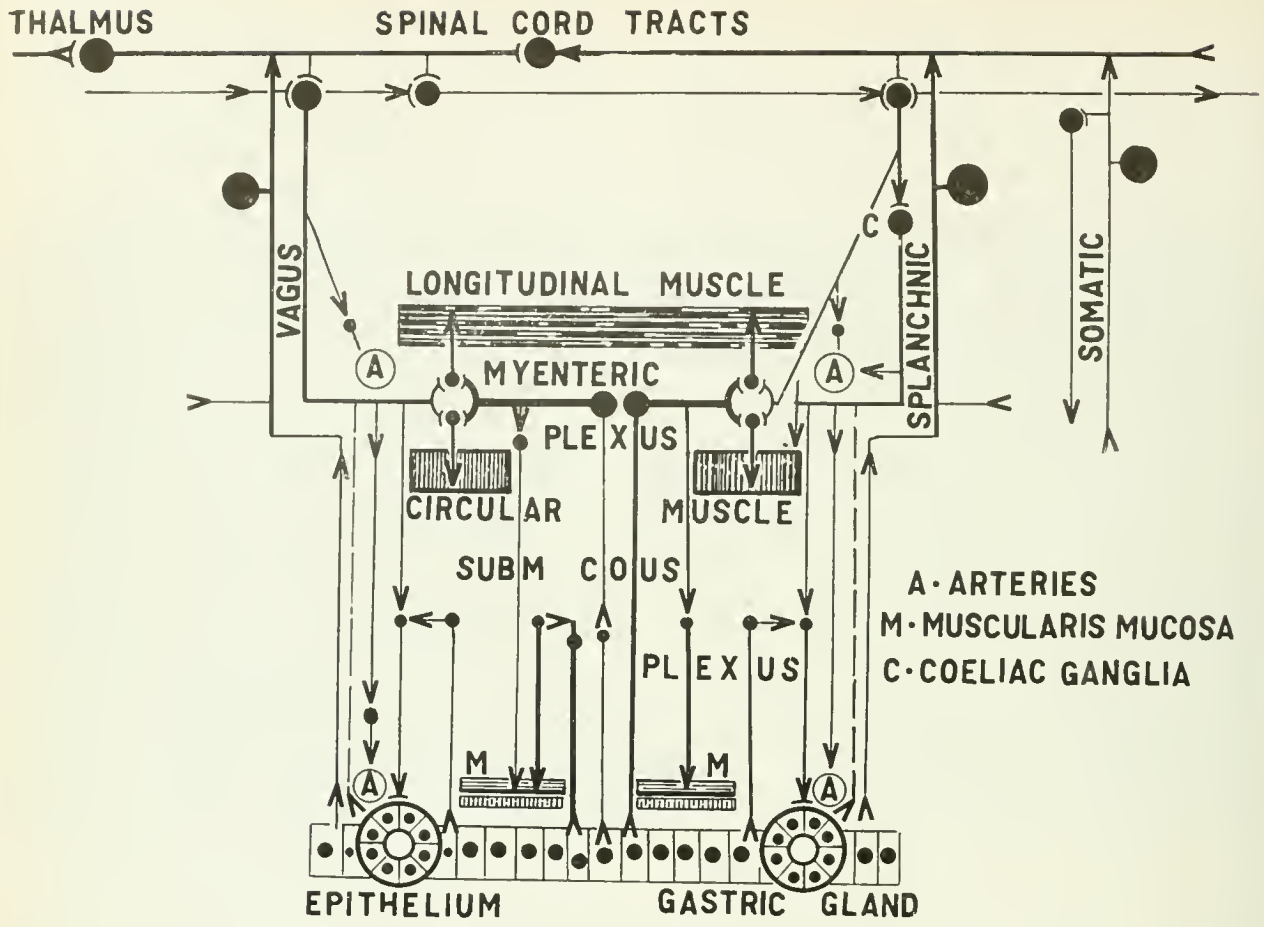


Fig. V. Diagram of the nervous control of the stomach showing myenteric and long reflex paths.

stomach with chronic ulcers or appendicitis. In this case we are forced to attribute the appearance of an ulcer to an overactivity of the sympathetics either because of a hypotonic condition of the vagus or some direct irritation of the true sympathetics. As previously stated, peptic ulcers may be associated with a hypertonic stomach in which the hypertonicity is probably the result of an irritable or unopposed action of the vagus. A spastic contraction of a small area of the stomach musculature, caused by an irritable or irritated vagus, may produce the same condition favorable to a lesion as that due to a spasm of the arterioles (ischemia). In each case the nutrition is impaired.

The Endocrine Glands and the Stomach

Research workers have gradually shown that the internal secretions are powerful regulators of metabolism and that they exert their influence either directly upon cells or influence them indirectly through their nutritional channels thence it becomes necessary to examine the various endocrine functions when altered metabolism or nerve functions occur. As a matter of fact, endocrine disturbances are diagnosed because of altered function on the part of bodily structures, and among such functional alterations those of the stomach stand well in the foreground. However, we would not infer that endocrine disturbances are to be considered as primary etiological factors in all cases of gastric disturbances.

As is well known the action of adrenalin is the same as stimulation of the sympathetic nerves.[42] (Fig. IV.) The thyroid secretion, on the other hand, appears to act upon the parasympathetic nervous system.[42 43 44] Hence, within limits, these two secretions are antagonistic in function. An increase of suprarenal secretion would cause sensitization of the sympathetic fibers which, as far as the stomach is concerned, would result in lessened motility and constriction of the gastric vessels.[17 38] The thyroid secretion, on the contrary, would increase vagus action and bring about increased motility and secretion of the stomach.[25 43 44] Rogers[44] has recently shown that extracts of the thyroid gland acts as vigorous stimulants for the gastric secretion, producing its effects, at least in part, by intensification of the functions performed by the terminal filaments of the gastric vagus. However, extracts prepared from pathological tissue of adenoma-

tous or hyperthyroid human glands are inert. Extracts of the entire adrenal gland actively inhibit gastric secretion and it is therefore presumable that this effect is produced by intensification of the inhibitory function ascribed to the gastric sympathetics. To a less extent extracts of the pituitary gland also inhibit gastric secretion. Hence a normal stomach depends not only upon its own properties to maintain function, but also upon a blood supply, a dual or opposing nerve supply, and a balanced action of the organs of internal secretion.

Exhaustion, fatigue, shock, and stress are known to act strongly upon the sympathetic nervous system and at times to the point of greatly reducing its power to function. The suprarenal and thyroid glands may be reduced to a degree not compatible with normal activity of the viscera. Such conditions would permit an unopposed action of the various divisions of the autonomic nervous system, and such a condition long continued would ultimately result in organic pathology, such as peptic ulcers, appendicitis, constipations, and diarrheas.[32 38] For instance, Mann[24] has shown that dogs dying of adrenal deficiency show gastric ulcer formations in a high percentage of the cases. That such ulcers are not produced by increased acid production may be shown by transplanting pieces of jejunum into the gastric wall in which case adrenalectomy is followed by ulcer formation only in the gastric tissue. However, the works of Stewart and Rogoff[48] lead to the belief that the suprarenal glands and their formation of epinephrin is not indespensable to the animal economy. An overactive gastric vagus may be the result either of sympathetic failure or of conditions which directly irritate or sensitize the vagus centers or the fiber terminals. However, the work of Levy[31] is not in accord with such a belief. It is true that the patients suffering with so-called "hyperthyroidism," do show marked gastric disturbances. (Fig. III.) Acute cases may terminate fatally after a few days of violent and intractable gastro-intestinal crises and profound and progressive cardiac weakness.[15 16]

However, we are not at the present time able to say whether or not the thyroid secretion in these cases represents simply an increased production of the normal secretion or a perverted or toxic secretion.* Notwithstanding these statements, we are beginning to appreciate the fact that thyroid dysfunction is often the result of an exhaustion of the sympathetics. In such a condition the gland is no longer inhibited in its action and consequently attempts to secrete in proportion to the degree of nervous excitation received by way of the vagus[43] and the body is flooded with a superfluous amount of secretion which it cannot utilize with a resultant overactivity on the part of the nerves and organs normally activated by the thyroid hormone. We are, therefore, led to believe that hyperthyroidism and the gastric symptoms associated with it are not to be considered as having their origin in local conditions in all cases, but because of sympathetic failure. Gastric disturbances and ulcers also occur in cases of hypothyroidism. In such cases we may consider the ulcer as having its origin because of vasomotor changes following decreased functioning of the thyroid. The vagus no longer would be activated and the sympathetics, being unopposed, would bring about an increased degree of vasomotor action associated with stasis and hypotonicity of the stomach.

*For an excellent discussion of the function of the thyroid gland see [28].

Ulcer Due to Systemic Disturbances

Gastric ulcers in man show a tendency to spontaneous healing as do also, those produced experimentally in animals. However, disturbances of endocrine glands seem to prevent this natural tendency to heal and, once the ulcer has formed, it tends to become chronic if the constitutional disturbance is not corrected. This point of view necessitates the consideration of peptic ulcer as due to systemic or metabolic disturbances. They cannot, therefore, be cured by surgery alone, although this may remove the mechanical complications and assist in the healing processes.

The diagnosis and physiological understanding of the nervous dyspepsias, the motility and secretory anomalies, changes induced in endocrine disturbances, in all of which sympathetic or psychic influences play a large rôle, are apparently being cleared up on the basis of a proper understanding of the dual innervation supplying visceral organs and the relation of the secretion of the endocrine glands to these same nerves.[21] Observations by means of the x-rays have greatly advanced our knowledge of gastric anomalies and motor disturbances. However, it would seem that x-ray findings must be interpreted as results and not causes. The emotional or psychic factors are probably the true causes, the anomalies representing end results of disturbed function. After years of pathological functioning (symptoms) permanent changes occur, the result of which is a viscious circle in which cause and effect are inextricably interwoven in their symptomatology. At the beginning of such disorders environmental adjustment seems to inflence these cases more effectually than attempted modifications of a preverted nervous system or chem-

ism either by means of active therapeutics or surgery.

It may, therefore, be concluded that the normal stomach is one in which, added to its myogenic properties, a proper reciprocal innervation is maintained associated with a balanced chemism. Alterations in any one of these elements will of necessity break the balance and resulting pathological functioning or symptoms will be in proportion to the degree of severity of the alteration.

Bibliography

1. Bayliss, W. M., and Starling, E. H.: The Movements and Innervation of the Small Intestine, Jour. Physiol., 1899, xxiv, 99.
2. Kuntz, A.: On the Innervation of the Digestive Tube, Jour. Comp. Neurol., 1913, xxiii, 173.
3. Behan, R. J.: Pain, New York, D. Appleton & Co., 1916.
4. Cannon, W. B.: The Acid Control of the Pylorus, Amer. Jour., Physiol., 1907-1908, xx, 283.
5. Cannon, W. B.: The Mechanical Factors of Digestion, New York, Longmans, Green & Co., 1911.
6. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, University of Chicago Press, 1916.
7. Contejean, C.: Action des Nerfs Pneumogastrique et Grand Sympathetique. Sur L'Estomac chez les Batracions. Arch. de physiol. norm. et path., 1892, iv, 640.
8. Courtade, D., and Guyon, J. F.: Excitabilité eomparés die Pneumogastrique et du Sympathetique Thoraciques, Comp. rend. Soc. de biol., 1900, lii, 532.
9. Dixon, W. E.: The Innervation of the Frog's stomach, Jour. Physiol., 1912, xviii, 57.
10. Doyon, M.: L'Innervation Gastrique des Oiseaux, Arch. de physiol., norm. et path., 1894, 5th Series, vi, 887.
11. Edkins, J. S.: The Chemical Mechanism of Gastric Secretion, Jour. Physiol., 1906, xxxiv, 133.
12. Elliott, T. R.: The Action of Adrenalin, Jour. Physiol., 1905, xxxii, 401.
13. Falta and Meyers: The Ductless Glandular Diseases, Ed. 2, Philadelphia, P. Blakiston's Son & Co., 1916.
14. Gaskell, W. H.: The Involuntary Nervous System, London, Longmans, Green & Co., 1916.
15. Goltz, F.: Studien über die Bewegungen der Speiseröhre und des Magens des Froseh es, Pflüger's Arch., 1872, vi, 616.
16. Green, C. L.: Medieal Diagnosis, Philadelphia, P. Blakiston's Son & Co., 1916.
17. Gley, E., and Quinquaud, A.: Des Rapporte entre la Sécrétion Surrénale et la Fonction Vaso-motorice du Nerf Splanchnique, Comp. rend. Acad. d. sc., 1916, clxii, 86.
18. Hofmeister, F., and Schütz, E.: Ueber die automatischen Bewegungen des Magens. Arch. f. exper. Path. u. pharmakol., 1886, xx, 1.
19. Friedmann, G. A.: The Probable Endocrine Origin of Peptie Ulcer, Jour. Am. Med. Assn., 1918, lxxi, 1543.
20. Howell, W. H.: Textbook of Physiology, Philadelphia, W. B. Saunders Co., 1918.
21. Jelliffe and White: Diseases of the Nervous System. Ed. 2, Philadelphia, Lea & Febiger, 1917.
22. Koplan, D. M., and Greeff, J. S. W.: Adrenophathie Hyperchlorhydrias. An Endocrine Therapeutic Study, New York Med. Jour., 1919, cviii, 61.
23. Kast, L., and Meltzer, S. J.: Die Sensibilität der Bauchorgane, Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1909, xix, 586.
24. Kelling, G.: Untersuchungen über die Spannungzuiände der Bauchwand, der Magen, und der Darmwand, Zeits. f. Biol., 1903, xliv, 161
25. Kohn, L. W.: Gastrointestinal Symptoms in Disturbances of the Thyroid, New York Med. Jour., 1919, ex, 1906.
26. Kronecker, H., and Meltzer, S. P.: Der Schluckmechanismus, seine Erregung und seine Hemmung. Arch. f. Anat. u. Physiol., Suppl., 328.
27. Langley, J. N.: On Inhibitory Fibers in the Vagus for the End of the Esophagus and the Stomach, Jour. Physiol., 1898-1899, xiii, 407.
28. Kendall, E. C.: The Thyroid Hormone and Its Relation to the Other Ductless Glands, Endocrinology, 1918, ii, 81.
29. Langley, J. B.: Schafer's Textbook of Physiology, ii, 695.
30. Lennander, K. G.: Abdominal Pain, Especially Pain in Connection with Ileus, Jour. Am Med. Assn., 1907, il, 836.
31. Levy, R. L.: The Effects of Thyroid Secretion on the Excitability of the Endings of the Cardiac Vagus, Arch. Int. Med., 1918, xxi, 263.
32. Loeper, Benzard and Wagner: La Dyspepsie Surrénale, Cited in Endocrinology, 1919, iii, 343.
33. Magnus, R.: Pharmakalogisehe Untersuchungen an Sipunculus nudus, Arch. f. exper. Path. u. Pharmakol., 1903, l, 86.
34. Mann, F. C.: A Further Study of the Gastric Ulcers Following Adrenalectomy, Jour. Exper. Med., 1916, xxiv, 329, also Ibid 1016, xxiii, 203.
35. May, W. P.: The Innervation of the Sphincters and Musculature of the Stomach, Jour. Physiol., 1904, xxxi, 260.
36. Miller: Jour. Physiol., 1910, xli, 410.
37. Morat, J. P.: Sur Quelques Particularités de L'Innervation Motrice. De L'Estomac et de L'Intestin, Arch. de physiol., norm. et path., 1893, 5th series, v, 142.
38. Lowenthal: Nebennierenapoplexie, Berl. klin. Wchnsehr., 1918, lv, 1126.
39. Openchowski, T.: Arch. f. Physiol, Suppl., 1889, 549.
40. Openchowski, T.: Ueber die nervösen Vorrichtungen des Magens, Centralbl. f. Physiol., 1889, iii, 1.
41. Pavlov, I. P.: The Work of the Digestive Glands. Translated by W. H. Thompson, Ed. 2, London, Chas. Griffin & Co., 1910.
42. Rogers, J., Rahe, J. M., Fawcett, G. G., and Hackett, G. S.: The Effects Upon the Gastric Secretion of Organ Extracts, Am. Jour. Physiol., 1915, xxxix, 345.
43. Rogers, J.: Fatigue Disease as Exemplified in Functional Disorders of the Stomach and Thyroid Gland, Arch. Int. Med., 1919, xxiii, 498; New York Med. Jour., 1920, iii.
44. Rogers, J., Rahe, J. M., and Ablahadian, E.: The Stimulation and Inhibition of the Gastric Secretion Which Follows the Subcutaneous Administration of Organ Extracts, Am. Jour. Physiol., 1919, xlviii, 79.
45. Ritter, C.: Zur Frage der Sensibilität der Bauchorgane, Zentralbl. f. Chir., 1908, xxxv, 609.
46. Smith, M. J.: The Action of the Autonomic Drugs on the Surviving Stomach, Am. Jour. Physiol., 1918, xlvi, 232.
47. Stewart, G. N.: A Manual of Physiology. Ed. 8, New York, William Wood & Co., 1918.
48. Stewart, G. N., and Rogoff, J. M.: Further Observations Showing That Epinephrin from the Adrenals is not Indispensable, Am. Jour. Physiol. 1919, xlviii, 397.
49. Waters, W. H.: Some Vaso-motor Functions of the Spinal Nerves of the Frog, Jour. Physiol., 1885, vi, 460.
50. Wertheimer, E.: Inhibition Réflexe. Du Tonus et des Mouvements de L'Estomac, Arch. f. Physiol., 1892, 5th series, iv, 379.

SOME MEDICAL TENDENCIES

The address of Dr. Alexander Lambert on "Some Medical Tendencies and Responsibilities," reported in the March issue of the *Journal of the Medical Society of the State of New Jersey*, gives an interesting account of the medical society organized in Paris founded by the Red Cross, which constituted a most successful forum for the exchange of views of the medical corps of the French, English, and American Armies.

At this stage of the war medical and surgical practice was about two years in advance of the literature. Surgical technic, rather than antiseptics was the reliance in infections. Sanitation and preventive inoculation had proved their value.

Dr. Lambert points out the fact that the American school, like the French, is based upon pathology and the experimental work of the laboratory; while the English is characterized by brilliant clinical work.

He regards as a defect in American methods that physiology, the science of normal function, too early in the course gives way to an almost exclusive attention to the morbid processes. One of the great responsibilities of medicine is to turn more toward the development and appreciation of clinical physiology, and to bring it more into the routine of daily practice.

The war accentuated the advantage of medical men working in groups. He takes issue with the view of Mackenzie that only the clinical man is able to look at things broadly, and holds that the best results are attained by men specializing in those branches that really interest them.

Special practice, however, necessitates that men work together—a tendency which has found expression in the greater perfection of present dispensaries. In the development of the dispensary in consultation service Dr. Lambert sees a possible solution to the problem of rendering proper care to all the sick in the community at a cost that would improve the economic status of the people and also of the medical profession.

Dr. Lambert does not overlook the opportunity of the dispensary to broaden and develop post-graduate medical teaching. As only the medical profession can be the judge of adequate service, it becomes the responsibility of the physician to develop and standardize the technical side of all hospitals and dispensaries. It is the responsibility of the medical profession, he says, "to mould their self-reliant individualism into a stronger team work through which, by a greater development of communal sense, they will be more willing to accept the social respnosibilities of their citizenship."

MEDICINE AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

Otto P. Geier, M. D., *Editor*

AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS

As in many other phases of medical practice, the importance of industrial medicine as a specialty was not appreciated until the field was occupied. Fifteen years ago industrial medical service included little more than the emergency care of injuries. It made no wide appeal as a specialty, nor was its importance to the physician appreciated until the apathy of the profession permitted to be incorporated under Workmen's Compensation such defects of medical administration as must concern the medical profession in general, and the industrial physician in particular.

The development of the concept of industrial medical service from injury repair to a complete medical service, with facilities for group practice and for following up a case with all desired aids, has placed the industrial clinic on a par with that of any other center where scientific standards are enforced, and results and research contribute to the medical arts. The American Medical Association endorsed the new specialty by creating at the 1919 conference a special section devoted to industrial surgery.

The American Association of Industrial Physicians and Surgeons will hold their Fifth Annual Convention in New Orleans Monday and Tuesday, April 26 and 27, 1920. The headquarters and meeting place of this Association will be at the Hotel Gruenwald. This Association has grown to approximately seven hundred members. The attendance is always large. The Atlantic City meeting demonstrated that one day is entirely too short for the reading and the intelligent discussion of the papers by those in attendance, and, therefore, it has been decided to devote two days to the program this year, with a banquet Monday evening.

The tentative program schedules a meeting of the Board of Directors for Sunday evening, April 25. The business session will convene at 9 o'clock on the morning of April 26, with Harry E. Mock, president, in the chair, when reports will be received of the President, the Secretary-Treasurer, and of the Committees on (1) Teaching, (2) Publicity, (3) Legislation, and (4) on the Red Cross.

Special topics have been arranged as follows:

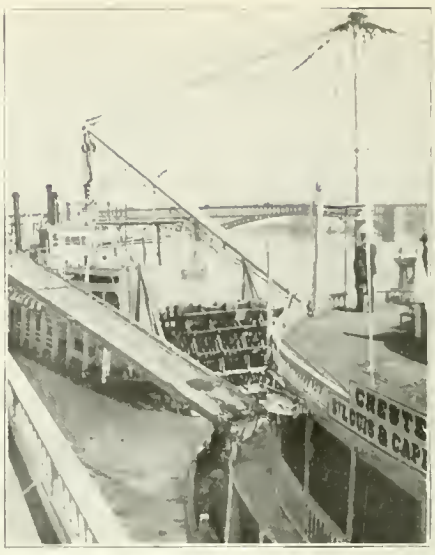
That the conception of industrial medicine has extended far beyond the early principles of emergency service is shown by tendency in conferences of industrial physicians to organize their work on a sound physiological basis. The evolution of physical standards for certain industrial requirements, the definition of conditions requisite for the maintenance of workers up to these standards, the psychic questions involved, and the hygienic and social problems concerned, are all reflected in the scope of the program announced for the conference at New Orleans. The topics include: "The Training of the Industrial Physician," "The Mentally Sub-Normal Wage Earner," "The Physically Sub-Normal Wage Earner," "Standardized Surgical Methods in Industry," "The Relationship of the Industrial Physician to the Venereal Disease Problem," and a symposium on "Industrial Physiology."

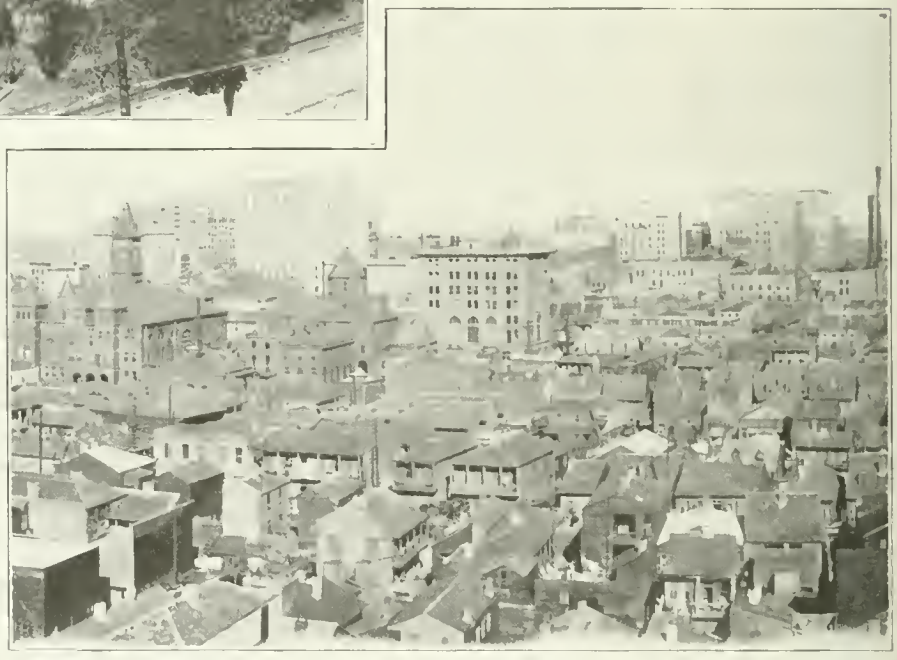
The program of Tuesday, April 27, will be devoted to at least four round tables dealing with such subjects as: (1) The problem of First Aid; (2) The Problem of Compensation for Sickness; (3) Higher Standards for Industrial Surgery; (4) General Discussion on the Report of the Committees on Teaching and Legislation.

The Association will endeavor at the conclusion of these round tables to take some definite stand in the subject of first aid in industry and go on record as to the limitations which should be placed on first aid procedures and upon those first aid workers who are not graduate physicians. The Association is also deeply interested in the problem of whether or not there should be compensation for those sicknesses and accidents not compensated for by the laws of the various states. It is probable that out of the general discussion at these round tables some definite stand will be taken upon this most important problem which now confronts the medical profession.

AMERICAN MEDICAL ASSOCIATION MEETS

IN NEW ORLEANS, April 26-30, 1920.





NEW ORLEANS is the happy choice of location for the early spring meeting of the American Medical Association, April 26 to 30, 1920. The old appellation, "The Crescent City" no longer describes the form of the city which has followed the bend of the Mississippi until it now describes a letter "S." Founded in 1718, the memory of its French Dominion is still retained in the titles of streets and avenues, and the contrast of the old French Quarters with the new district but emphasizes the charm of the old stucco walls, iron lattices, overhung balconies, urns and basins, half hid with vines. The moated and palisaded boundaries of early days are indicated by the wide, tree-planted and grassy avenues that lie along their course. Jackson Square is one of the quaintest and most picturesque of all the historic public squares in America. Under its old name of Place d'Armes it is associated with nearly every important event in the colonial history of Louisiana. The cathedral of St. Louis overlooks this square. Adjoining it on the one side is the Calaboza, dating from 1810, and on the other is the Cabildo, the government house and place of justice under Spanish rule.

New innovations, however, typify more than a change in architecture. Beauty in some spots may have given way to utility. Through municipal ownership of public utilities, New Orleans has made the most of her natural resources. Her wharves, warehouses, and elevators will be utilized by the Federal Steel Barge Line to revive traffic on big rivers. New boats and old will be operated from New Orleans with St. Louis as the northern terminal.

The location and configuration of New Orleans have made sanitation and drainage a difficult engineering problem that has been brilliantly met and has effected the transformation of the city from a malarious district to a healthful abode. The recent expenditure in plague prevention methods is but a part of a municipal policy. Their provision in health measures has won for this city an enviable record in the reduction of mortality rates from malaria and typhoid, the diseases which hereto constituted its greatest health menace.

Tulane University is notable among the higher institutions of learning in the United States. Its medical department, established in 1834, has turned out nearly five thousand graduates. Research work under the auspices of the Tulane School of Medicine has covered special problems in malaria, pellagra, beriberi, hook-worm, leprosy, and yellow fever. Training in public health work is provided by coordination with the Louisiana State Board of Health.

THE EXPERIENCE OF THE MEDICAL DEPARTMENT AT NITRO, W. VA.*

By DR. J. A. WATKINS, Medical Officer in Charge; Director, Industrial Medicine Division, Department of Industrial Medicine and Public Health, University of Cincinnati

THE war provided an unprecedented stimulus and opportunity in many branches of science and industry; none received a greater share of this stimulus than medicine; none was offered greater opportunity to demonstrate its true value as a national asset. The fact that a nation's strength depends basically on the physical and mental fitness of her citizens was brought to a state of clear and definite realization. It is a sign of the times that the progressive and sagacious in industry, and the various national governmental agencies took cognizance of this fact and delegated to the profession the responsibility of the acquisition and maintenance of health and physical efficiency of war workers. This responsibility was gladly accepted by the profession. Activities designed to better the health and increase the efficiency of war workers were not confined to members of the military personnel, but were prosecuted by and among civilians directly concerned with governmental war activities. An opportunity was thus afforded the profession of demonstrating modern medical methods of procedure in dealing with large groups of persons.

One of the many undertakings of this nature was the organization and conduct of the medical work during the construction and operation of the Government Powder Plant at Nitro, W. Va.

The construction of this powder plant and city was among the many undertakings incident to the unparalleled industrial expansion demanded of the Government to meet the exigencies of a war which had suddenly been thrust upon it. An irregular area of about eight square miles near Charleston, W. Va., was chosen by the War Department, and on this flat bottom farm land, through which the Kanawha River flowed, one of the greatest engineering feats ever attempted in the United States was successfully carried out. On January 1 the land was occupied by several small forms. It was fenced; corn stood in shocks; the farm houses and barns were occupied a typical West Virginia farming section. One hundred days later the Secretary of War, General Peyton March, and a group of distingushed men visited Nitro and found an industrial plant employing 22,000 people, manufacturing smokeless powder from the basic raw material. These visitors saw a small city of 1,2000 homes, schools, churches, a shopping district, a bank, and a theater. They inspected the second largest water purification plant in the United States; the largest acid plant; viewed fifty-five miles of interplant railway, and a mess room where 2,500 men sat and ate at one time. The party was accompanied by an escort chosen from among a mounted police force of 200 men. There was also a railroad station, an express office, a post office, and a motorized fire department. This party inspected a modern general hospital which could accommodate 600 sick and injured. But for lack of time they could have seen buildings erected from sunrise to sunset, a mile of standard railway laid before lunch, or a trainload of laborers discharged, inspected by medical officers, bathed and vaccinated, their clothes sterilized, the sick and the infectious segregated, and the well put to work within a similar length of time. Telegraph and telephone systems, complete and modern, were in constant operation. A car of material was unloaded each minute. Nitro plant and city seemed to grow by magic. The Secretary that day, in speaking to those working at Nitro, said: "It is the knowledge of such accom-

AN INDUSTRIAL CITY

In 180 days there grew, where farms had been, an industrial plant employing 22,000 people; a city of 1,200 homes, with schools, churches, theaters, and banks; a ninety million gallon capacity water purification plant; a telephone system; fifty miles of interplant railway; a six hundred bed hospital; and a motorized fire department.

Buildings were completed while the sun shone, and a car of material was unloaded each minute—all for the manufacture of powder for the western front.

The Medical Department was a distinct and important division and the Medical Officer in Charge was considered an executive of the plant and accorded courtesies in conferences and in matters of establishing policy and precedence in the work.

*The first of a series of three articles prepared by Dr. Watkins on the medical service at Nitro, W. Va., to appear in successive issues of Modern Medicine.

plishments as I have viewed today, as well as those of which we know in France, that has brought about a realization in Germany that we are a people who can not be conquered."

Conditions Without Precedent

As will be readily appreciated by the reader, the conditions under which the medical department operated at Nitro are not comparable to those previously experienced by the profession. The activities and results obtained must be considered with this in mind. Yet, notwithstanding the several adverse conditions under which the department operated, it is thought that the experience gained would be of interest to those members of the medical and allied professions who are interested in the development of industrial medicine; for it was from the viewpoint of an industrial physician that the work was attacked.

The site of Nitro as it appeared before the beginning of operations which almost like magic developed into a modern industrial city.

It will be gratifying to the medical profession, and particularly to those interested in public health and sanitary matters, to learn that in this instance the Medical Department was looked upon as a distinct and important division of the work at hand; that the Medical Officer in Charge was considered as an executive of the plant, and accorded courtesies in conferences and in matters of establishing policy and precedence in the work.

The view thus taken by the directors of this enterprise shows a marked increase of appreciation on the part of laymen as to the importance of public health matters. In the past, the recommendations of the medical officers were often not taken seriously, much to the detriment of the work at hand.

The construction and operation of an industrial plant and city such as Nitro create many problems of preventive medicine. Among these are the prevention of the introduction of communicable disease; the hygiene of housing; the acquisition of a safe supply of water and foodstuffs; a safe method for the disposal of sewage and wastes; and many general industrial hygienic problems, along with certain precautions to be taken in connection with the particular processes being carried on. The creation of a large residential area, in reality a small city, with stores, schools, theaters, imposes the same responsibility assumed by the health officer of an urban community. The United States Public Health Service assumed, in addition to the above duties, that of rendering medical relief in all branches and specialties and also an important service to the Federal Compensation Commission, as all employees of Nitro were beneficiaries of this Commission.

A brief mention of several factors bearing upon the general problems enumerated above may be of interest. First among these is the rapidity of increase in population. Second only to the rapidity of the grouping, was that of the grouping of persons representing widely divergent classes of society; previous environmental condition; intelligence; knowledge of modern ideas of medicine; habits of personal hygiene and cleanliness; state of health; age; race; and occupation. Early in February, when the Service first assumed responsibility, about fifty persons were employed at Nitro; 165 days later, about the date of the first industrial production, the population was in the neighborhood of 22,000. This does not fully indicate the sudden and great influx of people, for the labor turnover was at the rate of 620 per cent per annum. Those people were, in addition, grouped in a locality the prevalence of disease in which was such that importation of infection seemed at that time highly probable and did, in fact, later take place.

Other factors were as follows: The exigency of war necessitated extreme haste in construction and operation with the view to early and rapid production. Many basic hygienic laws were of necessity violated and dangerous risks taken. Foodstuffs, though in general procurable, were with difficulty obtained in Nitro. The water supply was rapidly becoming inadequate. Milk, even of reasonable safety, was not to be had. Improper attention of the medical profession of this locality in the immediate past.

The health organization of the state was unfortunately limited, both in available funds and activities. Preventable diseases were much too prevalent. A state of public mind desirous of better public health conditions was not evident in the immediate neighborhood of the plant. It was apparent, therefore, that with the influx of

There is little to suggest that in 180 days this scene was evolved from the typical West Virginia farming section shown on the opposite page. Its accomplishment was an engineering feat without precedent.

passable roads, continued rains, and rapidly increasing duty threw a burden on the sewage, garbage, and waste disposal facilities which was with difficulty carried. Under the same conditions the stabling of several thousand work animals on the plant, together with the oncoming of summer weather presented temporary difficulties. The workers at Nitro were not the hardiest nor the healthiest of men—because of the withdrawal by the operation of the Draft Law of those most free, as a class, of disease or ailment. In fact trainload after trainload of laborers arrived —ignorant, infested, alcoholic, drug addicted— combed by employment agencies from the lowest sections of our large cities.

Climatic Conditions

The West Virginia Geological Report states that in this section of West Virginia there are no long continued spells of excessive hot weather, while the cold spells are not exceptionally severe nor of long duration. The annual mean temperature is 56° F. The absolute minimum is 26° F. below zero, and the absolute maximum is 102° F. January and February (when construction actively first began) have an average mean temperature of 32.5° F. July and August (about when first industrial production began), have an average mean temperature of 76° F."

The prevalence of disease in the surrounding territory cannot be accurately given as the reporting of vital statistics had not received the thousands of persons from various parts of the Union, together with the unsatisfactory local status of health conditions, there would be presented the gravest possibilities for the introduction and spread of communicable disease.

On February 17 the personnel consisted of the Medical Officer in Charge, alone. On November 11, the list of personnel totaled about 800, of which number there were forty medical officers, eighty nurses, twelve skilled hospital employees— x-ray, laboratory and other technicians. Thirty were occupied in lay administrative and and clerical work, such as latrines, garbage and manure removal, water-carrying, and general sanitary policing. Between these two dates, of course, there were fluctuations, with a gradual tendency toward an increase to meet existing needs. All medical officers on duty were, with the exception of the author, acting assistant surgeons in the United States Public Health Service. The nursing staff was supplied by the Bureau of Nursing, American Red Cross. Only those nurses who by reason of age or marital state were not well suited for active duty at the front were thus detailed. This type of nurse can not do, as a rule, the amount of work which is ordinarily performed by members of the nursing staff of most hospitals. Many were past the active nursing stage of life.

The various trials through which employers throughout the United States were placed immediately after the enforcement of the Draft Law

were experienced by the Medical Officer in Charge. It was somewhat surprising, however, how easily the vacancies created in the rank and file by calling to the Colors of so many young and able-bodied men were filled by men and women who previously, by reason of age, physical condition, experience, or other causes, had not been considered as suitable for that particular class of work.

Statistics and Records

Extensive records were maintained, the most important of which were: Complete data as to physical condition of employees. Complete data as to physical condition of school children. Information regarding accidents and injuries. Vital statistics. Venereal control data. Hospital records.

A digest and study of these data would, no doubt, have been valuable, but unfortunately many records were lost in a fire.

Physical examination and medical supervision were provided for. Though it was not practicable under existing conditions to employ systematic or detailed intelligence or trade tests, each person before being placed on the payroll was subjected to a careful physical examination by medical officers. This department was conducted for the following purposes: (1) The prevention of introduction of communicable diseases; (2) the avoidance of employment of persons who either by reason of physical or mental disability might be a factor in the causation of accidents; (3) the discovery of remedial defects, in order that proper medical and surgical steps could be taken; (4) the determination of mental and physical status of the applicant for employment, in order that assignment to work could be made for which the applicant was best suited; (5) the exclusion of those who, either by reason of mental or physical disability, were incapable of performing labor of the type which was available; (6) the discovery of venereal infections and other infectious diseases in order that same could be hospitalized or treated, the labor supply thus being conserved, and the throwing out of infectious persons into society avoided; (7) the physical examination room, at the time of applying for work, afforded a most excellent opportunity for bringing the employee into close contact with the medical advisors. At this time various preventive measures could also be made known to the applicant; much popular hygiene and preventive medicine instilled and the confidence of the men obtained.

Periodical re-examination was made for the purpose of watching a certain physical or mental deficiency of an employee who was under observation, for change of occupation, or for the purpose of an early discovery of an occupational disease, intoxication, or injury.

The men shipped to Nitro, at Government expense, from various labor recruiting stations throughout the United States came with the understanding that they would be returned home at Government expense should they for any reason be refused employment at the plant. For this reason and also because it was desired to avoid the interstate transportation of disease, infected, or vermin infested persons, a system of medical inspection at the point of recruitment was also instituted.

After examination, applicants for employment were disposed of in one of the following ways: (1) permanently rejected; (2) temporarily rejected; (3) enrolled with disability noted; (4) certified for specified employment.

The scene of the varied industrial and social activities of a community of 22,000 people. Homes, schools, churches, a shopping district, a bank, a theater, a modern general hospital, and complete machinery for control are in full operation.

Several factors were involved in such classification of employees. The relative number of permanent rejections was small, both because it was the desire on the part of the construction agent to obtain every possible employee, and because

it was the desire to offer employment to every person capable of performing work. Only extreme cases were rejected. These fell into three classes: Class A—Those rejected at the request of the Federal Compensation Commission. Class B—Those rejected at direction of the Medical Officer in Charge. Class C—Those rejected at request of the construction manager.

Those rejected at the request of the Federal Compensation Commission were men who either by reason of mental or physical deficiency were liable to cause a serious accident, either to themselves or others, or both. Such men were the epileptics, those of deficient or impaired mentality, cases of advanced *tabes dorsalis*, the deaf and dumb mutes, and advanced drug addicts.

The men rejected on the initiative of the Medical Officer in Charge were those afflicted with a dangerous, loathsome, or contagious disease, which could not be readily cured or rendered noninfectious by reasons of the operating conditions at Nitro, with reasonable expenditure of time, money, and labor, and whose retention in the plant would be a source of danger to the public health. Among those so grouped were advanced tuberculous cases and the trachomatous, and the venereals who refused treatment.

The rejections at request of the construction agent were those who, because of a general physical disability, or the loss of a part, were not capable of performing any class of work available on this plant.

(To Be Continued.)

THE FUTURE OF MEDICAL PRACTICE

The *Ohio State Medical Journal* for March comments editorially upon an important investigation made by a special committee of the Cleveland Academy of Medicine on the subject of the organization and program of the Academy, and summarizes the report as follows:

"After enumerating accomplishments which have been made possible through strong organizations comprising men of similar interests in other lines of endeavor the report declares that only the great medical profession, as widely as it touches public life, has been blind to the desirability of such influential participation in community life and has failed to appreciate that the trend of the times in all other professions, businesses, and trades is toward a policy of assertiveness and aggressiveness in pushing the profession, if not the individual members of it, into the life of the community.

"The Future of Medical Practice" is the subject of the Committee's report, which declares at the outset and bears out through the remaining pages, that it concerns your own personal future."

"That the profession of medicine as now practised is in danger of being engulfed in 'state medicine,' and that unless the profession is properly forewarned and prepared, the doctor, whether general practitioner, surgeon, specialist or laboratory worker, may become a mere tool of capital, labor, and the politicians are also emphasized.

"The pauperization of the profession can be prevented by concerted and united action of its individual members" declares this Committee.

While the Committee's report undertakes to emphasize the profession's problems in Cleveland especially, it is absolutely pertinent to each physician in every community in Ohio.

As a summary, the Committee Report concludes with the following ten points:—

(1) The inefficient condition of the profession.

(2) The need for effective organization.

(3) The tendency of all classes in modern society to organize for attaining common purposes.

(4) The importance of the economic feature, if only for the maintenance of a scale of remuneration which will make good medical work possible.

(5) The need of an organization to secure: (a) Scientific programs; (b) economic justice, and (c) proper influence in legislation.

(6) It is desirable from an altruistic standpoint that organized medicine, *i. e.*, Doctors of Medicine, have due influence in public health education.

(7) A full time executive secretary is essential in a really efficient organization.

(8) To accomplish the purpose additional funds must be secured. This could be done by raising the dues.

(9) By the proposed division of membership into classes with a differential scale of dues no hardship would be inflicted on any member.

(10) Action must be taken promptly on account of pending legislation.

A more complete summary of the report is given in the same issue of the journal.

THE EPIDEMIOLOGY OF ACCIDENTS

In editorial comment on the "safety first" campaign being inaugurated in England by the National Safety Council of America, *The Lancet* of January 17 emphasizes the importance of careful preliminary study of the causation of accidents, not only in the risk of injury in a given case, but in the individuality of the person injured.

The study of the personal element in accident causation suggests that accident prevention, an important branch in the science of preventive surgery, is closely akin to preventive medicine. That accident is a chance occurrence is no more true than for an attack of typhoid, influenza, or tuberculosis. The accident rate of a given industry is not a chance one. "It is as regular from year to year as the occurrence of tuberculosis or cancer. . . . Not only is the total number of accidents thus regular, but the numbers due to special types of risk and affecting special parts of the body are similarly regular from year to year. Accidents appear to be dependent upon the personality of the persons injured and to represent reaction to environment. . . . Some persons have a tendency to sustain accident, just as in the field of medicine some persons have a predisposition to succumb to tuberculosis or some other infectious disease. . . .

"Just as education in personal health is today the best means for improving national health, so, in a 'safety first' campaign the aid of the individual and his education as to the existence of risk, with the way to avoid it, are the matters of primary importance to be considered. In matters neither of sickness nor of accidents can all element of risk be removed; but by improving health and alertness, rather than by fencing the public with protective guards, the influence of risk can be resisted."

TRAUMATIC SURGERY IN ITS RELATION TO WORKMAN'S COMPENSATION LAWS

By RAPHAEL LEWY, M.D., Chief Medical Examiner, State Industrial Commission, Bureau of Workmen's Compensation, New York City, Ex-Visiting Surgeon to Beth David Maternity Hospital, Chief O. D. P. Surgery, Beth Israel Hospital

HOW does surgery *per se* differ from traumatic surgery in its relation to workmen's compensation laws? To my mind, the latter implies emphasis upon the careful study of the etiology of trauma and upon temporary and permanent disability in their relationship to the ultimate permanent defects as they affect the earning capacity of the workman in his vocation.

MEDICAL SERVICE IN INDUSTRY

As to methods, per se, traumatic surgery varies but little from the accepted procedure in general practice. What makes for safety in the one case augurs well in the other.

The choice of method, however, is influenced by the occupation of the patient. A resulting defect that would be quite tolerable to a professional man might in the worker constitute a vocational handicap.

The best possible restoration, all things considered, in the Workmen's Compensation case calls for a keener prognosis and a more definite evaluation.

The conclusions presented in this article are based upon 28,313 examinations of men and women injured in their vocations and who, at the time of their physical examination, have exhibited either the remaining evidence of the injury or the defects consequent upon such injury.

Defects Resulting From Injury

At the New York State Industrial Commission, the patients are most frequently seen after they are discharged from surgical care, and at the time of their examination they present either the remaining evidences of injury or the defects which result from such injuries. The question may be asked, "Can you state from the remaining defects how the injury occurred, and what was the nature of the injury"? If we accept the axiom that upon any defect, whether involving the superficial or the underlying deeper tissues, bones, or viscera, nature leaves a distinct landmark, namely, a cicatrix, and if these cicatrices are studied carefully, one is very often enabled to state the causes and type of the injury. Differentiation must be made between the fine linear, non-pigmented, movable scar, indicative of a superficial wound which healed by first intention, and the scar which is adherent to the underlying tissues, and is evidence of slight inflammatory reaction; between the scar which is more adherent to the deeper tissues, and is evidence of an infection; and the non-movable, indurated scar, adherent to the important underlying structures, thus interfering with the mobility of the parts involved. This scar is evidence of serious infection of the underlying tendons. There remains to mention the deeper, indurated, adherent scar which is attached to the bones, and is evidence of infection and suppuration with destruction of underlying tissues.

Injury to the human body occurs in one of three ways: (1) The human body is the movable object and is projected against the stationary object. (2) The human body is the stationary object and a movable body impinges upon it or against it. (3) Man injures his body with the very tools, utensils, and mechanical appliances which he himself has created.

The Nature of Accidents

Accidents are frequently attributable to the posture which the workman must assume in his vocation. This posture differs greatly, of course, in the various occupations. It is instructive to contrast accidents which occur to men who work above ground with those occurring to men who work underground. The man who works above ground, and in particular the man who works at great heights—typified by the workers in the various building trades, more especially structural iron workers—is exposed to falls by reason of the insecure and narrow platform upon which he must stand. The injury either causes immediate death in consequence of the destruction of very important vital tissues or, if the injured man has sufficient resistance to overcome the immediate traumatic shock, there remain permanent, partial or complete, irreparable defects. Analysis of these cases shows that the individual receives either a fracture of the vault or base of the skull with its serious consequences, or a fracture of the upper part of the spinal column.

The semi-stooping posture of the man who works in excavations or in tunnels, while using pick and shovel, exposes the lower part of his spinal column to injury. Such a man is most frequently injured in consequence of heavy objects falling upon his back and is thus exposed to serious crushing injuries to the lower spinal column and pelvis, and to muscular strains of various sorts at or about the sacro-lumbar region.

There remains to discuss another class of working people—those who produce and who in the course of their occupations manipulate tools, instruments, and mechanical appliances, and who are exposed to the various injuries to the upper extremities, temporary or permanent disability resulting in consequence of mild or serious infections. The defects in this class of workmen are the cause of greater industrial loss than is produced in the workmen in other occupations. These conclusions are emphasized by the fact that out of the 28,313 cases we have examined, 4,083 were infections, for the most part involving the upper extremities.

Infections in Puncture Wounds

With regard to injuries and infections to the upper extremities, we may set it down as a *conditio sine quae non* of the more serious infections and their graver ultimate defects, the initial existence of a small punctured wound. Observation of my own large clinical material has failed to reveal a very serious general infection following an extensive lacerated wound, as in such wounds there is no retention and nature takes care of the drainage.

Let us describe first an ordinary injury daily seen in clinics, and which should be insignificant if adequate treatment is applied, namely, perionychia, or inflammation at or around the finger nail. This is an ordinary inflammation consequent upon some slight wound which, although sometimes painful, requires only the elevation of the cuticle from the nail, proper drainage, and a wet antiseptic dressing. It should heal without any functional defects of the parts involved if the surgery is adequate but not needlessly meddlesome.

The next infection is of greater importance, namely, panaritium or felon. This is an infection which occurs oftenest over the flexor surface of the distal phalanx of the finger, more especially of the index finger. It is generally in consequence of a wound punctured by some sharp instrument, usually a needle, and therefore occurs most frequently among tailors or needle-workers. As the wound is very minute the injured person may pay no attention to the injury at first, but within forty-eight hours, if an infection has set in, there is severe throbbing pain and enlargement of the tissues of the flexor surface of the distal phalanx. The slightest pressure over the infected part causes pain, and sometimes the pain is referable along the forearm up to the region of the axilla.

To understand this infection and its consequences more thoroughly, we must recall that the flexor tendon of the distal phalanx is attached to the base and does not go beyond that point. If it is remembered that phalanx wounds, which are the causes of infection, are oftenest near the tip and, therefore, do not involve the flexor tendons, it will be realized why this infection is most frequently a local infection of the tissues of the distal phalanx only. This infection requires adequate deep incision down to the phalanx, with proper drainage; it frequently remains localized at the primary site of infection and does not extend beyond it. The final result of these infections is always an involvement of part or the whole of the distal phalanx, suppuration taking place either through the original incision or, if after a certain time a sequestrum form, the pus escapes either through the original incision, if it has not entirely closed, or through a small bone sinus which persists as long as there is a loose sequestrum. In the latter case, the wound has to be reopened and the sequestrum removed. These infections are very painful at the beginning, and require a surgical disability up to eight weeks. There frequently result either temporary or permanent defects, there is a loss of part or all of the distal phalanx, or, in consequence of the suppuration, there is an adherent indurated scar with some involvement of the distal phalangeal joint.

The infection last described is and ought to remain a local infection, provided the surgical treatment is adequate, and the maximum defect ought to be, from the standpoint of compensation, equivalent to the loss of one-half of the index finger. The defect is more serious only when the infection occurs in old people. Our observations of these same infections in the aged have shown us that such patients develop marked fibrous changes at the interphalangeal and metacarpophalangeal joints, with serious functional defects. This complication is not an extension of the infection, but is due to the immobilization during the period of infection which evidently acts as a contributory cause of the secondary deformity. Another complication in the aged following this local infection, without any extension from the original seat of infection, is a limited mobility in the shoulder joint. The causes of this complication are not apparent.

Infection of Distal Phalanges

The infection of the distal phalanges is most often a local condition, very rarely involving the tendons, as these are attached to the base of the phalanges, a fact which explains why the infection resulting from a punctured wound beyond the distal phalanx becomes more serious as the extension of infection travels along the tendons to and beyond the palmar fascia, constituting a very serious complication. The cases of this last mentioned infection seen by the authors have resulted without exception in serious partial or total permanent deformities in which the functional defects involved part or all of the hand.

There is a very virulent infection which follows punctured wounds situated on the flexor surface of the thumb or little finger, most frequently at the proximal phalanges. To understand this serious infection it is advisable to recall the anatomical topography of the flexor tendons and synovial sacs in the forearm and hand. The flexor tendons of the hand are three in number, the *Flexor longus pollicis*, which is the flexor tendon of the thumb, the *Flexor sublimis digitorum*, and the *Flexor profundus digitorum*, which are the flexors of the other four fingers. These flexors are covered by a synovial sac which begins in the forearm above the annular ligament, goes beneath the annular ligament and is attached to about the middle of the four medicarpal bones where it terminates in a blind pouch, with the exception that it sends a fasciculus which covers the entire flexor tendon of the thumb as far as its attachment and also the entire flexor tendon of the little finger. It is due to this communication of the synovial sac with these tendons and to its close relationship to the annular ligament that a punctured wound involving the flexor tendon of the thumb and little finger causes such intense suffering and that the serious infections which extend along the hand and forearm are attended by serious ultimate functional defects.

The Occupations Most Affected

Our experience has taught us that this infection occurs oftenest among tin workers, butchers, and those who use pointed knives in opening fish or oysters. It occurs also among scrub women. The history and symptomatology are as follows: Within six or twelve hours after the alleged minute injury, which consists most frequently in a small punctured wound either over the flexor surface of the thumb or little finger, the patient suffers severe pain in the entire hand at and above the wrist joint. The site of the injury is very minute and at this time does not show evidence of an infection. Pressure over the site of the injury is not painful and even most careful examination reveals no evidence of local pus focus. The patient appears to be very ill, has a high temperature, and sometimes a chill. The most important physical sign of the infection is the semi-contraction of all the fingers and the inability to extend them. An attempt to force extension causes severe pain referable along the flexor tendons into the forearms. The general condition and this semi-contraction of the fingers causes the patient to try to secure relief. Failure to find a local pus focus makes it very difficult to institute the proper treatment.

It seems to be the consensus of opinion of surgeons that early operation is advisable. Such was also the opinion of the surgeons of the older schools here as well as abroad, but they were cognizant of the serious complication and serious deformities consequent upon the infection. They advised early, large incisions along the tendons of the *Flexor longus pollicis* or along the tendons of the *Flexor sublimis digitorum* of the little finger up to the annular ligament, and also incision into and drainage of the synovial sac to the side of the annular ligament. Some suggest that incisions go through the annular ligament exposing the flexor tendons of the forearm.

In my own employment of this treatment during clinical work for many years my results as to the relief of pain and ultimate functional mobility of the hand were very bad. In common with other surgeons, I found it necessary to reoperate on these cases until a pus focus could be located, which is most frequently situated beneath the palmer fascia or at about the thenar or hypothenar eminence. These very bad results which I have described I see even today in the course of examination of very large clinical material.

Treatment Before Surgery

As a result of careful attention to this subject during the last twenty years and from the observations of his later clinical work, it is our belief that this extensive functional deformity of the hand, wrist joint, and lower forearm can be prevented by converting the septic infiltrative focus into a local pus focus before operating The best procedure is the application of continuous heat over a moist dressing. The continuous heat causes an artificial hyperemia with a resulting increased local phagocytosis which causes the early breaking down of the infiltration, converting it into pus. Under such preliminary treatment for from four to six days preceding surgical interference, it is possible to locate the pus focus, and then with proper and adequate incision to lay it open and drain it. Drain-

age must be emphasized; not packing. Since adopting this mode of treatment our results have been better, that is, instead of a contraction of all the flexor tendons, which was formerly observed following the early extensive incision, we now find that this modified treatment jeopardizes only the one flexor tendon which is destroyed by the pus focus and, therefore, results only in a contraction of one or two fingers. Also, as adequate incision and drainage in a local pus focus are sufficient, secondary operation does not become necessary as was formerly the case.

To prove that this treatment is based on experience and has merit in its practical application one need only refer to the method of Professor Bier, which is also only a passive hyperaemia and has been vaunted in septic infiltration as accomplishing the same thing as the treatment above described.

As to the future treatment, this infection requires surgical care for months, and from a vocational point of view, the representative cases which we see in our examinations and which are treated by various surgeons in different institutions present the same irreparable defects which we observed years ago in our clinical work. From a vocational standpoint the deformities are usually equivalent to the loss of the entire hand.

Plastic Surgery for Deformity

As this concludes our consideration of the infections which involve the flexor tendons in consequence of minute injuries and as the cause of the various degrees of functional defects of the most important part of the body, the hand, we must refer to our experience of the so-called surgical *plastique* which is performed on these cases with the intention of restoring the function of the hand. When the defect in mobility results from an indurated scar adherent to the underlying tissues, the results after competent surgical interference are fairly good; but, when the immobility results from the destruction of the tendons themselves, surgical interference, although producing a better cosmetic effect, has in the cases that I have examined not been very beneficial from the standpoint of functional mobility of the hand. The bad results are very often accounted for when the defect of mobility is not only in the tendons, but when there are also changes in the phalangeal joints which cannot be overcome by surgical procedure.

Infections involving the extensor surface of the hand and forearm are most often of vocational origin and are produced by irritating substances, sometimes chemical, sometimes metallic, causing the so-called furunculosis or pustulovesicular infection. They occur among people working in furs and dyes, are not easily amenable to treatment, recur often, and need not only local treatment, but require autogenous vaccine treatment as well. We have lately had opportunity of studying these cases among munition workers, in whom this pustulovesicular infection occurs in consequence of irritation by small metallic particles which are saturated with an oily substance. The infection is painful and in some cases may cause secondary metastases and prove fatal. We have also seen a few cases of anthrax among workingmen who come in contact with hides. The infection preceded by an injury was most frequently on the side of the face, near the angle of the lower jaw. We have observed that early excision of the pustule and vaccine treatment benefit most of these cases. We have also seen two cases of actinomycosis of the face resulting from the workman's contact with hides. The infection was preceded by a local trauma of the skin. The infection in both cases was over the tissues of the malar bone.

Remarks on General Infections

Local infections of the tissues of the extremities which are followed by pus foci, with or without a lymphangitis or a lymphadenitis are very seldom complicated by general systemic infections, although they are serious from a surgical point of view and requiring a long surgical disability with certain functional defects of the part involved. It is the minute local infections, without formation of pus foci, ushered in by a chill and high temperature which constitute the serious systemic infections that jeopardize the life of the patient.

Remarks on Hematogenous Infections

By hematogenous infections we understand those which enter the general system through the circulation. They either manifest themselves immediately during the acute infection or may remain dormant for many months or years until a nidus is created.

A suppurative infection of any part of the body may have healed entirely from a surgical point of view, and the individual may not show evidence either by physical signs or subjective symptoms that he suffered from a general infection as a sequel of his original infection. Such an interim may be a long one, until the same person meets with a secondary accident to a part of the body distant from the original infection. This secondary injury causes a *locus minoris resistentiae* and is nidus for the development of the bacteria which were entirely inactive up to the time for this secondary injury.

The author can cite many such examples long

since seen in clinical experience and again lately in the examinations made for the Workmen's Compensation Commission. It is possible to activate not only a previously dormant hematogenous septic infection by an injury, but also a dormant tuberculosis or a syphilitic infection. This is of considerable importance as they are often points of divergence in discussions and disputes between physicians representing the injured man and the insurance carriers. The question is often brought up whether certain serious infections are attributable to a secondary injury or to a prior infection. Whether the injured person has had syphilis or a latent tuberculosis, or a hematogenous infection in consequence of a previous infection, if, as a result of an injury, his dormant general infection is activated, and in consequence thereof he is disabled, it is the author's belief that he is entitled to compensation for his disability and, if such an infection results in death, the death is compensable.

The most virulent of destructive infections fortunately, however, of infrequent occurrence, is the infection caused by the *Bacillus aërogenes capsulatus*. Without going into a detailed description it suffices to say that this infection most frequently results from a minute punctured wound, oftenest in the lower extremity, at the plantar surface of the foot, in consequence of stepping on a rusty nail. The site next in frequency is an infection of the upper extremity from a wound at or about the wrist joint. Those who have sufficient resisting power to overcome the infection are left with permanent defects, but most of the cases are fatal.

Duration of Disability

The length of the period of disability is relatively of greater import in the compensation case, as difficulty may arise in determining the degree of disability represented by a stiffened joint or the limited use of a member. A word about the duration of disability from these infections from a surgical and vocational point of view in their relationship to workmen's compensation laws might be appropriate. In ordinary uncomplicated perionychia the usual surgical disability is up to about four weeks, and there is no permanent vocational disability. In panaritium or felon, involving only the distal phalanx, the surgical disability may last as long as ten weeks and the vocational defects may be equivalent to the loss of half a finger. In the other serious infections of the hand, beginning either in the thumb or little finger, there may be a surgical disability for as long as six months, and a vocational disability equivalent to the loss of the greater part of the hand.

NATIONAL PHYSICAL EDUCATION SERVICE

Representative Simeon D. Fess of Ohio, who is chairman of the Committee on Education in the House, has introduced a bill initiating physical education on a national scale. Senator Arthur Capper of Kansas has introduced a similar measure in the Senate. The fundamental aim of the bill is to give every child between the ages of six and eighteen years the opportunity for a periodic health examination, practical instruction in the principles of healthful living, and training in physical activities which insure a high degree of resistance to disease and a properly coördinated, physically efficient body.

The schools, with the cooperation of the departments of public health, furnish the most effective existing machinery through which to work out this program. The sponsors of the bill have kept in mind the dual aim of safeguarding state autonomy and insuring that the work done will measure up to reasonable minimum standards. No arbitrary authority is given to any Federal official or department. Federal authority is to administer only the explicit provisions of the Act.

MEDICAL COLLEGE ASSOCIATION ELECTS OFFICERS

At the annual meeting of the Association of American Medical Colleges held in Chicago, March 2 and 3, Dr. William Pepper, Philadelphia, was elected president; Dr. Thomas Hough, Charlottesville, Va., vice-president; and Dr. Fred C. Zapffe, Chicago, was re-elected secretary-treasurer. The new executive council consists of Drs. Irving S. Cutter, Omaha; Isadore Dyer, New Orleans; James Ewing, New York City; Charles S. Bardeen, Madison, Wis.; and George Blumer, New Haven, Conn.

NATIONAL TUBERCULOSIS ASSOCIATION MEETS

The annual meeting of the National Tuberculosis Association will convene in St. Louis, Mo., April 22-24, 1920. It is said, since the war, that the question of tuberculosis eradication was never more urgent than now, nor has it ever been more appreciated that a tuberculosis campaign is a general health campaign.

This conference just precedes the American Medical Association meeting in New Orleans and health workers en route to New Orleans should include the Tuberculosis Association convention in their itinerary.

The following chairmen are in charge of the various sections of the annual meeting of the National Tuberculosis Association, to be held in St. Louis, Mo., on April 22, 23 and 24.

Clinical Section—Dr. George E. Dock, Professor of Medicine, Washington University, St. Louis.

Pathological Section—Dr. Eugene Opie, Professor of Pathology, Washington University, St. Louis.

Advisory Council—Dr. Allen W. Freeman, Secretary, State Board of Health of Ohio.

Sociological Section—Dr. H. W. Hill, Executive Secretary, Minnesota Public Health Association, and President of the National Congress of Tuberculosis Secretaries.

Nursing Section—Miss Edna L. Foley, Superintendent, Chicago Visiting Nurse Association. Miss Foley has been on leave of absence for the past six months, doing tuberculosis work under the Red Cross in Italy.

Headquarters will be at the Hotel Statler.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

DEATHS DUE TO ACCIDENT A PUBLIC HEALTH PROBLEM

DEATHS due to accident or "external causes," as they are nominated in the census reports, have generally been treated as if they lay beyond the sphere of the activity of the health officials. With an increasing realization of the fact that the objective of the modern public health campaign is the prevention of preventable disease and disability and death in every form, it seems clear that the accident hazard deserves the serious consideration of the health officer.

The 1918 mortality statistics for the Registration Area which have just been issued show external causes ranking fifth as a cause of death, following influenza, pneumonia, organic diseases of the heart and tuberculosis; and in ordinary years they stand fourth. The death rate from "external causes" in 1918 was 100.6 per 100,000, equivalent to 5.6 per cent of the death rate from all causes, an element in the total mortality large enough to constitute a major problem for the sanitarian. The largest single factors in this group of causes are accidental falls—12.6 per 100,000; suicide—12.1 per 100,000; railroad accidents and injuries—10.5 per 100,000; automobile accidents and injuries—9.2 per 100,000; and burns, excluding those due to conflagrations—8.1 per 100,000.

It is encouraging to note that the safety movement is making headway and that the death rate from "external causes" is gradually declining. The rate of 100.6 for this group of causes of death recorded for 1918 compares favorably with corresponding rates of 108.8 for 1917 and of 107.9 for the period 1906-10; yet accidental falls killed more people than typhoid fever in 1918 and railroad accidents almost as many as measles.

The methods which promise success in the reduction of accidents are clearly indicated by the successful campaigns which have been waged by many industrial concerns against hazards of this type. The first essential is included under the general heading of Safety Engineering, the construction and management of the places where men work and live and move about so that every avoidable opportunity for accidental injury may be minimized. The other essential is the conception of "Safety First,"—the cultivation of a sense of personal responsibility. No amount of prevision on the part of public authorities or employers of labor can protect the man who "takes a chance."

In particular, there is one "external cause" of death which is not decreasing but increasing, year by year,—death from automobile accidents and injuries. While other types of accident hazard have more or less steadily diminished, the death rate from automobile accidents has increased from 1.8 in 1910 to the figure of 9.2 recorded for 1918. This is, of course, no evidence of increasing carelessness but merely of increasing use of motor transit; yet the obligation is none the less clear to meet the growing problem by the vigorous enforcement of sound traffic regulations.

To quote from *Delaware Health News* for January: "In considering this large number of deaths from accidental causes it must be borne in mind that these deaths are for the most part of strong, vigorous persons, many of them healthy children; and the loss to the state is much greater than the loss of an equal number of persons who are suffering from some chronic disease for which there is no cure. A campaign of education regarding accident prevention should therefore be given the same serious consideration as a campaign of education regarding disease prevention and, if this high toll from accidents cannot be materially lowered by education, then those responsible for these deaths must be dealt with so severely that their example will serve as a warning to others that the life of no person can be placed in jeopardy with impunity."

EDITOR.

A CRITICAL SURVEY OF PUBLIC HEALTH TOPICS

By JULES SCHEVITZ, General Secretary, Oklahoma Tuberculosis Association, Oklahoma City, Okla.

I. Food Restriction and Mortality.
II. The Biology of Public Health Problems.

I. FOOD RESTRICTION AND MORTALITY

AN interesting account of the effect of food restriction during the war on mortality in Copenhagen is contributed by Hindhede[1], Danish nutrition worker. The allied blockade had considerably reduced the supply of bread cereals in Denmark, which had previously been imported, so that the principal foods used were bran bread, barley porridge, potatoes, greens, milk, and some butter. Pork production was very low and beef was so costly that only the rich could afford to buy it. It is evident, therefore, that most of the population was living on a milk and vegetable diet.

This low protein experiment with about 3,000,000 subjects began in March, 1917, and was in full force by October, 1917. During the year ending in October, 1918, the death rates for epidemic diseases and tuberculosis fell to 66 per 10,000, representing a decrease of 34 per cent as compared with the average rate for the previous seventeen years.

In the words of the author, "The death rate for Denmark for the year October, 1917, to October, 1918, was 10.4 per thousand. It never had been lower than 12.5, the figure for 1913-1914. A difference in the death rate of 2.1 per thousand for a population of 3,000,000 means a saving of 6,300 lives. Hence, the saving of lives in Denmark as a result of the Allied blockade was considerable."

Whether the national use of a low protein diet was itself responsible for this decrease in the general mortality is open to question. It is to be remembered that during the year under consideration the output of alcoholic beverages was greatly reduced, and this fact undoubtedly operated in favor of a decreased mortality.

There seems to be a prevailing opinion among nutrition investigators that the average diet contains too much protein. The use of vegetables and bran is believed to result in better physical condition.

Lactovegetarianism is considered by McCollum[2] as the most highly satisfactory plan which can be adopted in the nutrition of man. This diet consists of the combination of vegetable foodstuffs taken along with a sufficient amount of milk to make good their deficienies. As Hindhede observes, an unusual amount of bran was consumed by the people of Denmark during the period of food restriction. Added to this was the milk and some butter which aided in making the diet in many respects ideal.

II. THE BIOLOGY OF PUBLIC HEALTH PROBLEMS

THAT the biologist should have an important place in formulating and executing our public health program because of his broad scientific preparation is the plea of Prof. Raymond Pearl, of Johns Hopkins University, in a discussion on "The Significance of Some General Biologic Principles in Public Health Problems."

Professor Pearl questions the achievements of our present public health program and suggests that the failure to control tuberculosis and other diseases has been due largely to our neglect in not recognizing the significance of certain fundamental biologic principles in the causation of disease. Among the desirable results from the wonderful development of bacteriology there was also the unfortunate one of swinging the pendulum of medical thought far off the sound general biologic pathway. Too little emphasis has been placed on the constitutional factors and too much on the environmental causes. Frank recognition and intensive investigation of the fundamental biologic factors in the problems of public health are essential to further real progress toward their solution.

As an example of the value of biologic interpretation of health phenomena, the author recounts the result of his studies into the variations of the explosiveness of the 1918 influenza epidemic. Careful statistical analysis shows that the ordinary demographic and environmental influences did not account for the differences in the explosiveness in the various cities studied. The restrictive and repressive measures used during the epidemic on the different cities had no bearing on the course of severity of mortality. It was found, however, there was a very high correlation between the explosiveness of the out-

1. Hindhede, M.: Effect of Food Restriction During War on Mortality in Copenhagen, Jour. Am. Med. Assn., 1920, lxxiv, 381.
2. McCollum, E. V.: The Newer Knowledge of Nutrition, D. Van Nostrand Company, New York, 1919, pp. 52 and 81.
3. Pearl, Raymond, Ph.D.: The Significance of Some General Biologic Principles in Public Health Problems, Jour. Am. Med. Assn., 1920, lxxiv, 275

break of epidemic mortality and the normal death rate from all causes in the same community. On further analysis the correlation existed to an even higher degree for three great causes of death; namely tuberculosis, organic heart disease, and acute nephritis, and Bright's disease, which are primarily dependent on the functional breakdown of the lungs, the heart, and the kidney.

Investigations by Pearson and by the author indicate that the incidence of pulmonary tuberculosis determined to a very large degree by constitutional or hereditary factors rather than by environmental factors. Cardiac and renal diseases are recognized as primarily organic, so that the "biometric analysis demonstrates that populations particularly subject to these constitutional diseases were the populations which were least able to withstand the onslaught of an especially virulent epidemic."

If it be true that heredity imposes a hard and fast limitation on the effectiveness of palliative or control measures for public health, then we must recognize the need of serious revision in our present public health methods.

CINCINNATI SURVEY OF THE AFTER EFFECTS OF INFLUENZA

By PAUL MASON, Cincinnati, O.

What does experience profit a man if he does not analyze its elements and bring its lessons forward so as to eliminate in his work of today the mistakes of yesterday?

Out of the most violent ravages of epidemic disease, intelligent survey can evolve added skill in meeting a like situation and may broaden the compass of medical activities.

An exact conception of the damage done is the first step in remedial measures which must include a régime adapted to the permanently handicapped, an economic prop during temporary disability, and correction as far as possible of depressing after effects.

THE Cincinnati, O., Chapter of the American Red Cross and the health department of the city, working with the financial support of the American Red Cross Society and receiving the cooperation of a number of life insurance interests, among which the Metropolitan Life Insurance Company of New York has been particularly active and helpful, has just finished and reported on the first complete survey in the country of the after-effects of influenza covering a definite territory and population. The survey is impotrant, and the report is of incalculable value, not alone because it is the first of its kind, but chiefly because of the systematic way in which the survey was organized,—the high character and professional standing of the physicians, surgeons, and nurses who conducted it, and the fact that it covered a metropolitan area, including Cincinnati and Hamilton County, with a population of more than 600,000 that had been hard hit by the disease.

Study Effects, Not Causes

Little effort was expended to determine the cause of the disease, although nothing was ignored that might throw light on that subject, but no definite results were achieved as to its etiology. The importance of the survey lay not so much in fixing causes as in defining, delimiting, and removing or counteracting the effects of the disease, and all energies were directed to this end. Dr. Lee K. Frankel of the Metropolitan Life Insurance Company, who examined closely into the system followed and the results as they were developing when he was in Cincinnati attending the convention of the American Public Health Association as president of the Association, gave it his heartiest endorsement, and subsequently wrote that "Cincinnati is doing the first real work in this respect of any city in the country."

Partly as the result of his interest, and partly as the logical sequence of the splendid work for health conservation that is being done by his company, the Metropolitan field force in the territory contributed largely to the success of the methods and the far reaching results attained.

The results of the epidemic, as revealed by the report on the survey, were nothing less than appalling with respect to the general health of those attacked by influenza, this class constituting a very large proportion of the population, and in its consequent influence on mortality, unless the sequelae are counteracted. The report shows also the possibility of this counteraction or removal, and in that respect mitigates the gloomy outlook revealed by the statistics of after-effects.

Outstanding features of the report are the high proportion of cardiac cases, covering a wide range of seriousness; the abnormal development of tuberculosis and pre-tubercular conditions, and the large number of throat affections. Hardly less striking is the absence of affections of the urinary organs from the statistical record. These apparently were so infrequent as to be regarded as of little importance, and, therefore, are included in the general classification of "Other conditions."

The scope of the survey and the wide range of ailments found are set forth in the following figures:

Total number registered	13,772
Total number examined	7,058
Number under 3 years of age	665
Number from 3 to 10 years	1,117
Number from 10 to 20 years	1,116
Number from 20 to 40 years	2,749
Number from 40 to 60 years	1,179
Number over 60 years	232
Total number examined	7,058

Racial and sex distribution was as follows:

	Male	Female	
White	2,608	4,246	
Black	83	121	
Total	2,691	4,367	
Grand total			7,058

Of this number 5,624 required medical attention and 1,434 were examined but not recommended for treatment, and 2,015 were re-examined.

Defects and Diseases Diagnosed

This classification includes all of those requiring medical attention, a few of those not recommended for treatment, and a considerable number of patients who had two or more ailments.

Communicable disease	1
Defective vision	507
Diseases of the eye	184
Defective hearing	166
Diseases of the ear	134
Hypertrophy of tonsils and adenoids	816
Diseases of respiratory tract	913
Defective nasal breathing	591
Pulmonary tuberculosis	183
Pre-tuberculosis conditions	265
Asthenias	828
Cardiac diseases	643
Defective teeth	1,208
Skin diseases	97
Venereal diseases	45
Other conditions	2,352
Total	8,933

During the four months of operation, from May 1 to September 12, 1919, 13,772 influenza subjects were listed at the thirteen stations; 7,058 were examined; and 5,624, or nearly 80 per cent, were found to be in need of some kind of medical, surgical, or dental interference. Those re-examined from time to time—observation cases—numbered 2,015.

The number of cardiac cases (643) found, is decidedly high, and embraces the usual run of lesions from ordinary irregularities down through the functional and organic lesions. Careful examination of statistics bearing on the high death rate following preceding influenzal epidemic reveals the fact that a large number of deaths were due to cardiac diseases.

Illustrating this point, it is noted that following the epidemic last spring, an unusually large number of prominent citizens died suddenly, and inquiry invariably elicited the history of an attack of influenza during the pandemic. Such issues being usually cardiac in origin, this is supposedly the cause in most cases; but there is no means of determining what type of heart disease was responsible, whether a myocardial affection, a conduction defect, or a serious valvular lesion. In this connection the question arises, could such a condition be diagnosed in a routine way; and, if so, could an adjustment of corporeal activity or other directions prevent the fatal outcome?

These and other considerations prompted Dr. Julian E. Benjamin to make special cardiac examinations on selected cases found complaining of cardiac distress. Complete electrocardiographic and polygraphic observations will be made the subject of a special report, but the preliminary report is filled with interesting and valuable data.

The greatest distress was noted among those who had influenza during the first wave in October. Symptoms complained of in most cases were inordinate fatigue or exhaustion, weakness, dyspnea on slightly more than normal exertion, tachycardia, and precordial distress.

Cardiac examinations presented two definite points of diagnostic interest in many cases: (1) Cardiac rate above normal which did not return to the quiet rate three minutes after exercise. (2) Diminution in intensity of the first mitral sound, making it very difficult to distinguish the first from the second sound. Most of the cases showed no organic heart disease. The few organic lesions that were detected had existed for several years, but undoubtedly were aggravated by influenzal infection.

The number of tuberculosis cases is striking in the respect that they are in nearly every instance new cases, never before reported to the health department. Of the 183 reported cases, 61 were confirmed either by x-ray or sputum examination, and the remaining 122 cases presented sufficient clinical evidence to warrant a tentative diagnosis of "incipient pulmonary tuberculosis."

The follow-up work on tuberculosis cases is described as having been particularly well done, and as approaching, as nearly as possible, 100 per cent efficiency.

Among the 263 pre-tuberculous cases the report includes those with a little roughened breathing, flat chests, enlarged glands, positive von Pirquet, but no pronounced auscultatory symptoms. It was found by experience in the clinics and confirmed by many practitioners that nearly 50 per cent of the children under five who had had influenza gave a positive von Pirquet.

The asthenic group, so called on account of the symptoms presented, furnished a very interesting study, and one of considerable value. The largest immediate results, so far as treatment was concerned, were seen in this class. For the most part under-nourished, with anemia of more or less severe grades, lacking in physical strength and initiative, yet without any demonstrable pathology,—these cases enjoyed a speedy return to normal with rest and a course of stimulating tonics.

Nose and throat cases were quite numerous during the course of the work, and the nose and throat specialists performed 190 tonsillectomies and adenectomies.

The x-ray was used in the examination of 184 patients, and 449 plates were made as aids to diagnosis or in confirmation thereof.

Other defects and diseases in the main were not chargeable to influenza, although nearly all were aggravated by it to greater or less extent. Even defective vision, in a few instances, was remotely influenced by the influenzal attacks.

Defective teeth are touched on in the report only in their effect on the general health, in cases in which their detrimental influence tended to make the inroad of influenza easier rather than being affected by it.

Remedial Measures Employed

The survey was accompanied by a definite and effective system of relief for those who needed it, extending in many cases to material financial assistance. Shattered homes, health, and income, —inability to work,—impaired efficiency, and loss of earning power, mental anxiety and distress, coupled with the high cost of living, completed the chain of horrors following the ravages of the epidemic.

Its economic effects first were felt by the various social agencies early in February. Every organization and agency caring for dependents had more applicants than it could care for. The Cincinnati General Hospital had cared for 151 families consisting of 553 persons, every member of which had been stricken. More than 50 per cent of the wage earners in 400 dependent families cared for by one organization had been unable to return to work.

Therefore, the plan was adopted of carrying forward, side by side, the work of relief and the task of discovering and removing or counteracting as far as possible the after-effects. The American Red Cross financed the movement with a total of $50,000—$25,000 for each branch of the work. The form and manner of relief has been as effective as the clinical researches, and the local chapter of the Red Cross, which had direction of the activities, has completed its task with a balance of $7,058 remaining in the medical fund, a considerable part of which probably will be transferred to the permanent relief fund as the relief section is expending approximately $1,000 a week in the care of 150 families.

Every Metropolitan agent and solicitor in Hamilton County took an active part in the work, and the health section of the Metropolitan Life Insurance Company gave invaluable assistance to the health department of the city, which had direct charge of the clinics. The thirteen health stations have been closed but have been superseded by night clinics at various schools, conducted by the same men and women, and in the same manner,—so that while the original program has been completed, the work is going forward without interruption, and with results that compare favorably with that already reported on.

APPOINTED DIRECTOR GENERAL

Ward Bonsall, associate director of the Red Cross Department of Civilian Relief, has been appointed Director General of the Department, succeeding J. Byron Deacon, who recently resigned. Mr. Bonsall came to the Red Cross on April 1, 1919, as Director of Information Service in the Department of Civilian Relief. On December 8, 1919, he was appointed Associate Director General.

L. E. Stein, who has been serving as Associate Director of the Bureau of Information, has been appointed Assistant Director General of Civilian Relief.

THE NEED OF MORE LABORATORIES

That clinical laboratories in a community do not take the place of public health laboratories designed and operated to handle work with public health significance, is the opinion of Dr. Martin Dupray, chief of the Division of Laboratories, Illinois State Department of Health, in the March issue of the *Illinois Medical Journal.*

The public health laboratory operates with the object of disease prevention and epidemic control. It is the proper sphere of research work requiring large numbers of specimens for comparison.

In most communities in Illinois there is urgent need to develop both clinical laboratories as aids in treating the specific case and public health laboratories to supplement health measures. The distant laboratory, no matter how well conducted, cannot be as useful as a local laboratory.

PUBLIC HEALTH NOTES FROM THE VOSGES*

By THEODORE C. MERRILL, M.D., Conferencier, Foyers du Soldat; Acting Assistant Surgeon, United States Public Health Service

THE enormous mass of medical material, —method, innovation, and record,—will, when assimilated, shed an inundation of light on the world and also open numerous problems for solution by enthusiastic students for many years to come. The value of the information collected by the Army and Navy, the Red Cross, the Rockefeller Foundation, and other active organizations is inestimable. Some time will naturally elapse before this huge amount of material can be presented, but the sooner it can be offered to the world the better, for the sake of every public, every nation, and every interest now intent on the task of extrication from the embarrassments caused by the war.

HEALTH THEORY AND PRACTICE

When nations compete with one another in racial betterment, and health becomes a matter of national pride, then will there come a better era in the world.

The great impetus to health work from the war has come from the comparison of conditions and the need that has been brought home to every nation of conserving the life and strength of its members.

The difficulty of achieving effective health work anywhere is to get health theory and health practice on a somewhat similar basis. The universal observance of a comparatively few rules would, in a short time, transform present health conditions.

"Show" Features in Health Work

In flights up and down the eastern half of the west front, flights made for the purpose of interesting the French in American methods as applied to public health questions, it was impossible to avoid making a few notes, although provided neither with time nor opportunity to do any genuine survey work. Addresses, or conferences, as the French call them, given under the auspices of the Foyers du Soldat, which was my service, had to be fairly entertaining as well as instructive. It was practically infeasible to attempt these conferences without the "show" feature—and, for that matter, the show is perhaps the very best method for imparting information vividly and unforgettably, provided the show be really excellent. Show material in this case consisted almost solely of lantern slides and moving picture films, cinema films, so-called. It is very difficult to get effective and dependable material of this kind. At the outset I wish to acknowledge most cordially the courtesy and assistance of the Red Cross and Rockefeller Tuberculosis Commission, as well as the kindness of the French Ligue contre l'Alcoolisme. Without the cinema films and lantern slides which were lent to me by these organizations, the attempts at public health instruction made by the Foyers du Soldat would have been severely handicapped. A film devoted to tuberculosis and treating the subject in a humorous fashion was very popular with the French, as also was a dental film created by the New York Dental Association. The Foyer also used a so-called hygiene film called "The End of the Road," and various posters and other printed matter were widely distributed. It was my good fortune to lnd a commercial film showing the method of physical examination and record in use by the Life Extension Institute of New York, and films showing athletics and gymnastics were utilized whenever possible.

Owing so largely to the help thus rendered, one may fairly feel that the Foyer conference labor was not expended in vain. It may be remarked also that the conferences extended not only to the French but to many colonial troops, Sengalese, Algerians, Haytians, Annamese, and others, and to hundreds of Russians and Poles. They were given nearly always in French, German being used occasionally for Russian troops who did not understand French. For many Russians the address was made in French and translated to the men by some Russian

Typical village street, the children's playground. They seem to think no automobile could hit them.

*Publication officially authorized.

officer who understood French. Being thus given under American representation, this conference work is very happy in being counted among influences which had the possibility of putting America in the best light as an unselfish servant of suffering humanity. I speak with conviction when I say that every man placed by America in a foreign land has within his grasp a marvelous opportunity to glorify or degrade his country and either to strengthen or to weaken her influence with other nations. Practically without exception, the public health agencies and their personnel overseas acted and continue to act in such a fashion as to make America beloved as the star among struggling peoples; not that America's stellar rôle is orbitally perfect, either.

Closet bed (lit clos) of Brittany. It is kept beautifully clean, but the Pullman berth has it bested for ventilation. The cradle, however, is human.

Making up the closet bed, pretty but stuffy. In Anvergne beds much like these are built into the wall.

Prominent Health Problems of France

Tuberculosis and alcoholism admittedly constitute the foremost public health problems of France. With these run closely questions of the birth rate, infant mortality and venereal disease. France's active thinkers accept the facts and propose remedial measures. I do not find anywhere in France a tendency to blink the issues involved but on the contrary I find a very serious consideration of such issues, perhaps almost pessimistic in tone. Certainly the spirit is not that of the "fool optimist."

With a tuberculosis rate not only much higher than ours or that of Great Britain, but a rate that has remained almost stationary for ten years, it is no wonder that French attention is aroused. Actively associated with this question are alcoholism and sanitation. In some regions of France there is extensive use of highly alcoholized beverages, such as cognac, calvados, and mirabel,—calvados a Norman cider-drink of the hardest variety, mirabel, a Vosgian brew of plum. In such regions drunkenness is common and much in contrast to the condition obtaining where drinking is limited to light wines and beer. The cognac, calvados, and heavy liquors must go, and the French know it.

Sanitation? There is no more interesting subject in France than that. Theoretically and sporadically the French sanitation is the best in the world. As a national practice it is admittedly lacking.

Simple method of municipal drainage. Frequently flushed, a street may not be so bad, but flushing is often lacking.

The sanitary engineering of Paris is admirable, notwithstanding the superficially alarming quality of the frank public urinal, whose danger, in Paris at least, is far more apparent than real and which is not without advantages, even in the eyes of many Americans. The rural places, however—ah, that is another tale. If only immediate convenience in the disposition of body discharges is to be consulted, then, to protect the public, such disposition must be rendered safe, and that is not done in the little towns and villages. Not all American small towns need preen themselves particularly, for I seem to remember such not one step in advance of the crudest, most careless exemplars of casual public health in France.

The daily bath in France was a ceremony before the war and practically ruled out by war and post-war conditions. In one town which I recall, the French officer had installed a simple douche for his men, just like the douches in ordinary use at our soldiers' barracks. However, that was

not usual. Bathing in France is done less frequently than in America, but perhaps the people are going to do better, especially if they can be provided with soap, which has been so expensive and hard to get. Also, warmth in the home is necessary for proper bathing, and here again looms the war, with the serious fuel deprivation caused by it.

Parenthetically it may be said that, in using the terms "France" and "the French," one is likely to permit these expressions to represent a wholesale and national, instead of a local and parochial, idea. America knows almost not at all the life of the shut-in community, the community that lives by immemorial custom, the community that creates the folksong as well as the wall bed, or *lit clos*. We still have a few Kentucky mountaineers, a few Arkansas travelers who do not travel, but as a general rule we circulate. We don't cling to a hampering, if romantic, past. And so let us remember that France is a congeries of communities, self-living and self-dying, and that it is quite difficult to say that this, that, or the other is typically "French." The war will probably result in effecting a change in this respect, as the pressure of the crying public health problems may also do ,not wholly to the world's benefit, perhaps, and yet with greater gain than loss.

Real Reform Through the Children

Child life in France is on the eve of a reformation. It is hard to interest French youth over ten years of age in American ways of exercise and outdoor life. Not so with the children. The French public school child is going to adopt American and English ideas more and more. He is a dear, sweet, enthusiastic little chap, full of courtesy inborn, very simple, yet sometimes living fully up to the concepts connoted by the term "gamin"; but he is France's hope and the French publicist is well aware of it. Going up and down in some little place hidden away in a valley of the Vosges mountains, we used to notice the children. "There is a husky one," we would say, "these French kids are just as strong as any other kids." But then there might be an occasion to cast a glance at a school. There, in the aggregate, was a clear showing. There one could visualize the problem; for adenoids, bad teeth, imperfect development, rickets, defective eyes, and general results of poor nutrition were often evident. Moreover, in places where one could arrive at a rough sort of child census by means of our American clinics or crèches, one could learn of the enlarged glands, improper infant feeding, the swaddling of babies, with consequent obstruction to free development, the abscesses, the imperfect hearing and sight. Of course much of all this was due to the privations and cruel hardships imposed by the war; but plenty of it is amenable to cleanliness, ventilation, drainage, and restriction and control of body discharges.

The small town laundry—that big, substantial stone or concrete tank with its goddesses, the laundresses—provides a ready means of distributing disease, for its overflow runs down the streets and through the town. It seems usually to be placed at a point which will insure a thorough partition of its benefits to the entire village, has apparently been there for time immemorial, and will be there when Gabriel blows his horn. And the small town manure piles, ranged before the houses like family altars, are tremendous fly-breeders. The manure is hauled to the fields in the spring—some of it is. Some of it always isn't, leaving a generous nidus and refuge for the perennial fly, God bless him.

Northern France, except for a brief summer period, is all water,—rain and mist above, the ground a sponge, the streams usually beyond their banks. Yet the potentialities! Not all the children were pale. The peasant-soldier is tough and hardy, the peasant-woman strong and studry. What would not good hygiene accomplish! And yet there is another side of the shield, there is the question of immunity as contrasted with, if not opposed to, the palliations provided by a too fervid worship of the padded life.

Great and constant was the exposure inseparable from war conditions. One must fare forth in cold and wet, go to bed in cold storage, and rise amid bleak airs. Yet many of us were never so well as during the days when we were ministered to by a minimum of hygiene. Never were skins so free of eruption, never was "pep" so active, never was life so joyous and so merry. An American medical officer who had had occasion to note drinking-water practice among French as well as among American soldiers told me that the French "eau potable" was harmless to the French, while the dainty overseas doughboy would be made ill by it, so that chlorination was always necessary for the Yankees' little insides. Again, is it the question of immunity, of developing resistance? Hygiene is of unquestioned necessity, but the toughening process should accompany it.

Reverting for a moment to the young people, it is remarkable how readily the French school child adopts American ideas of exercise. He is perfectly capable of learning teamwork in athletics, a thing which it is very hard to teach the present-day French youth who is beyond the ear-

lier school periods. The French youths engaged in baseball offer to our eyes a spectacle which is instructive because of its conspicuous lack of our essentials, which are often forgotten by the bleacherites because of their elementary nature. The French are excellent at football and boxing. The step of the French soldier is quick and effective, a good ground-getter. The Foyers du Soldat, a young organization modeled somewhat after the Y. M. C. A., is modifying its wartime functions to meet the needs of civilian life, and associated with it are a few American athletic directors engaged in developing hygiene and athletics for the school children and youth. The outdoor principle is a coming one in France, to which a great central stimulus will be imparted by the immense Pershing stadium erected in Paris. Athletics for girls and women are little developed as yet, but a humorous article in a French daily shows that basket ball and the Porte Maillot, one of the outside barriers of Paris, are becoming linked inseparably in the French consciousness.

This happy child hails from Parthenay. The French have not yet learned the value of free kicks for babies.

In my experience, the French diet contains too much nitrogen. Too much meat tends to constipation unless one is engaged in vigorous muscular exercise. Even then, the excessive quantity of nitrogen is suitable only for the young and still growing person.

A few health hints, roughly outlined for the benefit of the American in France, were as follows:

Attention to the bowels is very important.

Plenty of water is to be ingested.

Vegetables are to be washed in sterile water.

Clothing to be warm; feet to be kept warm and dry.

Bathing prescribed according to opportunity, a dry friction rub to serve in place of the bath when necessary.

Clean, dry underwear to be put on in the morning, frequent changes assuring an air bath to the garments.

Fighting flies should go on all the time.

Cleanliness in the environment is to be maintained as thoroughly as possible.

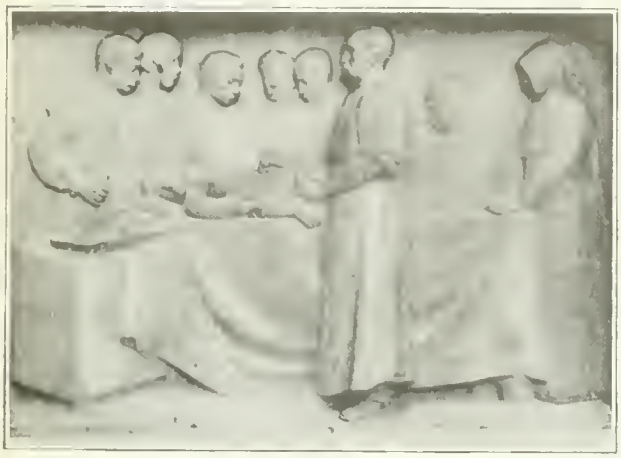
Refuse is to be burned or buried, and no accumulations of it to be permitted.

To these suggestions, even at the risk of repetition, should be added the rule of scrupulous care in the disposition of body discharges. The casual methods commonly seen in rural places the world over are likely to be lethal when made the rule for years in the vicinity of one's house and hearthstone. Uncovered holes and other lax ways which permit flies to make free journey between excreta and the exterior and interior of the body, with food as a convenient medium and halfway house, are sure to cause sickness and death which are readily preventable. The French admit the principle. With them, as with us, the difficulty lies in making theory one with practice.

Sanitation of the French railway is likely to come as something of a shock to the American novice. It must be remembered that French trains are usually intended for short runs. This principle under war and post-war conditions referred primarily to distance, leaving time out of consideration. The result was often much embarrassment and distress. One soon gets accustomed to the one and only toilet for man, woman, and child that is the invariable rule on trains where toilets are available at all. This is the case in carriages, or coaches, having a corridor or passage along one side, or practicable from and through compartments to a toilet in the end of the carriage. A toilet always exists in the express and long distance trains, at least in the first class, and usually in the second class carriages; but the local trains and the third class may and often do consist only of transverse compartment cars with no toilet whatever. A man can usually drop out for a few minutes during a stop and, between the carriages, find relief. With women, however, it is a difficult, not to say harmful, matter on a protracted, dragging trip, during which it is impossible for them to leave the compartment without a publicity which the French themselves do not seem to admire, however lightly they may take such matters in other situations.

All rules were suspended during the war. During the period of restoration, which will be so slow and so difficult, conditions will be generally far, very far, from the ideals and reals of our comparatively comfortable American life; but France will meet her necessities, will prove to be the same resourceful and ingenious nation that she

has always been. She will emerge, too, a changed nation, a nation which has learned the value of travel and a nation which will place herself on record as a practitioner of what she preaches, as well as a producer of scientists like Pasteur, Roux, Calmette, Landouzy, Hayem, and so many other brilliant members of the family of medical stars. For a national and practicable hygiene she must



The doctor is highly esteemed in France. Bas relief, monument to Dr. Chinieux, ex-mayor of Limoges.

The always-ready milk supply. Asses' milk hasn't much vogue in America, but French people use it considerably.

modify some of her political hindrances, to which Dr. Carrel is said to have referred at the moment of quitting France for return to our shores, just as we must abolish some of our own stumbling blocks if we are to progress toward a restored national life of commerce, industry and advancing human effort.

It is impossible to close without reference and tribute to a very important agency in the dissemination of a modern national and international education in hygiene, namely, the council on health and hygiene assembled at Cannes last spring under Red Cross auspices. Heartily promoted by the French, it is impossible to imagine that the counsel of the disinterested and distinguished medical men there assembled will not be heeded. The work so initiated is slowly going forward, without much outward evidence, but with far reaching effects.

Ultimately it is sure to prove a force that will be perhaps more efficacious that any other in creating an international entente and concerted action in mankind's war against social and personal pathology.

GENERAL WOOD FAVORS NATIONAL DEPARTMENT OF HEALTH

In a speech recently before a body of physicians and surgeons at Battle Creek, General Leonard Wood advocated the establishment of a National Department of Health with a medical man at its head as a member of the cabinet.

"What we need in this country," said General Wood, "is a sound national department of public health, a health bureau with a medical man at the head of it as a member of the cabinet. It doesn't make any difference who establishes it. It is a thing that is bound to be done. Our public health service is now scattered through a dozen different departments under as many different heads. What we need is one centralized department, nation wide in scope, to take care of all national problems of health and sanitation.

"The average layman doesn't realize what great advances have been made in the medical profession in the past few years. I do not suppose in any war in history medicine and surgery have done as much as they have in the late war.

"You can do a great deal under the dramatic stimulus of war, just as we did in Cuba. There we had to rid the army of yellow fever and so great was the pressure that we were justified in trying out our theories upon human beings who volunteered, and, fortunately, only one or two of them died. Out of that however, came the control of yellow fever and the control of malaria. The British had given us the first experimental work in that direction and then came the work of that wonderful American Commission, Walter Reed, Lazear, and Carroll, on yellow fever and its control. That commission saved us more lives and money every year than the war cost us and it is a possession which is everlasting. It has aided in making the tropics and semi-tropics safe for white people for all time.

"Then again we took hold of the Panama Canal, and it was built on the sanitary foundation laid in Cuba. The work of Walter Reed and his associates in Cuba made the work of Goethals and his associates in Panama possible. Delesseps and his French associates were just as good engineers as we were; they were quite as resourceful, and just as brave.

"We have no monopoly on any of those qualities; but they could not build the canal because they could not stand the terrific death rate. General Goethals, the engineer, went in hand in hand with General Gorgas, the sanitary expert.

"The sanitary methods of the medical profession have worked tremendous benefits for humanity. In fact, it was the work of medical men in very large part which made it possible to maintain a fighting force on the lines."

A PLAN TO STIMULATE THE FAMILY PHYSICIAN IN THE DIAGNOSIS OF TUBERCULOSIS

By J. J. MOORMAN, M.D., St. Anthony's Hospital, Oklahoma City, Okla.

IN Opening the discussion of this subject I desire to make a broad denial of the charge of ignorance concerning the diagnosis of tuberculosis on the part of the family physician. While it is true that to become expert in the diagnosis of diseases of the chest is a most difficult task, and that few physicians attain any marked degree of skill in this direction, the fact still remains that the average physician knows much more about the diagnosis of tuberculosis than he is credited with. His failure is due to a lack of application rather than a want of knowledge. He fails to make practical use of the diagnostic means at his command.

INTEREST DEPENDS ON CONTACT

The Medical Field Secretary should serve to connect the interests of organized health activities with those of the isolated physician who must cope unaided with the problems of the individual patient.

The scientific care of any disease depends upon accurate and early diagnosis. Accuracy of diagnosis depends upon a consideration of all the factors. Here, as elsewhere, interest is the basis of good work.

Interest in specialties and refinements of technic is largely a matter of contact. Hence the value of tying up individual and collective activities and planning an intelligent campaign to which all contribute.

Factors Contributing to Neglect

This negligence is usually due to indifference which in each individual case has grown out of one or more factors that contribute to the sum total of diagnostic inefficiency. In some instances it is due to lack of education and experience; in others it may be the result of pure laziness; but in the great majority of cases it may be more properly attributed to the urgent demands placed upon the busy practitioner. He too often yields, perhaps unwittingly, to the flattering appeals of his numerous patrons and the natural desire to crowd as much work as possible into a given period of time and thus, under the stress and strain of a so-called successful career, he leaves off one by one the diagnostic refinements and in so doing he helps to bring upon his profession the charge of inefficiency and the widespread feeling that the physicians need to be educated in the diagnosis of tuberculosis. Another factor which is worthy of consideration is the feeling on the part of many physicians who live in rural communities that their environment and lack of facilities fully justify all their diagnostic shortcomings.

The average man in the practice of medicine is prone to magnify his limitations and minimize ern laboratory methods of diagnosis have had something to do with this feeling, especially among those who are removed from medical centers and laboratory facilities. The influence of the laboratory in the progress of medicine should have full recognition. The research laboratory should be welcomed and generously supported. The diagnostic laboratory should be made accessible to as large a number of the profession as possible, and it should be freely employed as an aid in diagnosis and for the purpose of checking physical findings.

There has been a tendency on the part of some physicians to depend too implicitly upon laboratory diagnosis. We should bear in mind that while in many cases the laboratory findings are quite definite and must be accepted as conclusive, in others they are open to question and should be accepted only when they correspond with the physical findings. Let us never forget that we have ever with us all the necessary means for the application of the fundamental methods of physical examination which, if carefully and faithfully applied, will in the great majority of cases lead to a definite diagnosis, or at least suggest the course of laboratory procedure advisable in any given case. It is well for the doctor who laments his limitations to ask himself the following questions:

Have I realized fully the importance of a carefully taken history and the necessity of a thorough physical examination with the patient's clothing removed? Have I learned perfectly the topography of the normal body in order that I may the better recognize departures from the normal? Have I mastered the fundamental methods of physical examination? What degree of efficiency am I getting today from inspection, palpation, percussion and auscultation? Is it not true that those men who have stood preëminent in the field of diagnosis have done so because of

superior cultivation and application of the special senses employed in physical examination and not because of laboratory or mechanical aids to diagnosis? Have I considered carefully Sir William Jenner's notable statement, "More mistakes are due to want of examination than to want of knowledge"? Have I persistently striven to perfect myself in the application of the diagnostic means at my command, and if not, to what may I attribute this negligence? We must strive to bring these questions home to each individual physician, we must seek to develop a diagnostic conscience which will not brook the slipshod methods characterizing the past.

A Plan of Cooperation

In Oklahoma we are seeking a practical way to interest the largest possible number of physicians in the diagnosis and treatment of tuberculosis. The following plan has been suggested and in part adopted:

The State Tuberculosis Association, with the cooperation of the State Commissioner of Health, shall employ a Medical Field Secretary. It shall be the aim of the Association to secure a man of outstanding character and personality, who will command at once the respect and confidence of the medical profession. He should possess a broad knowledge of general medicine and in addition he should have special training in the diagnosis and treatment of tuberculosis. It shall be the duty of the Medical Field Secretary to study the local tuberculosis problems and their relation to other health questions and go into the various communities of the state, making himself acquainted with the physicians, meeting with them in their regular medical gatherings, arranging for special meetings for the discussion of tuberculosis, and providing for free diagnostic clinics where known and suspected cases may be examined, always in the presence of the attending physician, in order that diagnostic methods may be taught and their relative importance properly emphasized. He shall also be available for expert consultation in those cases where it is not practical or possible for them to attend the clinic.

Through this method the discovery of new cases in the community and the confirmation of the diagnosis in many of the suspected cases will tend to arouse the personal pride of the local physician and stimulate him in the use of all available diagnostic facilities. Through his close touch with the physicians and the message he has to deliver, the Medical Field Secretary may be able to furnish an inspiration which is so sadly lacking in the lives of many physicians, and which is often one of the determining factors in the making of a diagnostician.

Under the proposed plan, each state sanatorium should become a school for doctors as well as for patients. These institutions should be well equipped for diagnostic work and the medical chief should be thoroughly qualified to teach the diagnosis and treatment of tuberculosis and his staff should be chosen and organized with this in view. Provision should be made to accommodate visiting physicians and from time to time, as occasion arises, a regular course of instruction should be given to as many as can be induced to visit the sanatorium for this purpose, classes being formed as often as available material demand. While laboratory methods should be taught, the course should deal chiefly with the fundamental methods of examination which may be easily employed at home and every effort should be made to impress the importance of a carefully taken history and a thorough physical examination.

The Medical Field Secretary should be in close touch with the work of the state sanatoriums and should be on the teaching staff and participate in the work of the same when circumstances will permit. In this way he will serve as a link between the state sanatoriums and the family physician. He will be prepared to present the merits of such a course and through his work in the field the most suitable material for classes may be gathered. Such a plan would not only stimulate the physicians of the state in the diagnosis of tuberculosis, but it would insure a more scientific management of the state sanatoriums and it would strengthen the bond between the sanatorium patient and the family physician, and prepare the way for more successful and more satisfactory after-care

During the patient's stay in the sanatorium the family physician should receive monthly reports dealing with the progress of the case and the methods employed. These reports should be brief, but comprehensive, giving the various steps in the management and the reasons for the same; always emphasizing the fact that even the management is to be guided by the physician's diagnostic acumen.

The execution of this plan should in no way interfere with the usual publicity and educational activities of the Oklahoma Tuberculosis Association, but should rather increase this work, as the various phases of such a scheme should be fostered by legitimate publicity.

Cooperative Medical Society in Belgium

Cooperative stores for the benefit of physicians, pharmacists, midwives, veterinarians, and others in similar professions for the cooperative purchase of all kinds of goods have been founded. Such cooperative stores have already been organized in Brussels, Antwerp, and Liége.

THE KANSAS HEALTH CAR "WARREN"

By FLORENCE BROWN SHERBON, M.D., director, Division of Child Hygiene, State Board of Health, Topeka, Kas.

THE Kansas Health Car, Warren, has just completed its fourth yearly itinerary. In view of the present interest in graphic methods of giving health instruction, a description with an appraisement of the work may not be amiss.

Fig. 1. The aim of the health exhibit carried directly to the people by the health car, Warren, is to make its message intelligible to a fifth grade child, and to give him a unified health story.

In 1915 the Pullman Company presented an old observation Pullman car to the State Board of Health. An appropriation was made for remodeling and equipping the car, and a small maintenance appropriation has been made for each succeeding year.

The car was named in memory of the promising son of Dr. Crumbine, secretary of the State Board of Health, who died in China in 1916, at the early age of twenty-four.

The car has made one round trip each year, going over a different road each time and making, roughly, a loop into each of the four corners of the state. The car has traveled over the Sante Fe, the Union Pacific, the Missouri Pacific, and the Rock Island. It now remains to make a series of shorter trips reaching remaining portions of the state. The railroad companies have given splendid cooperation by making minimum charges for mileage and service. In addition to this, local agents and all other railroad employees have been uniformly helpful and cordial.

A Personnel of Three

During the first two years the car was operated by two Public Health Nurses and one helper. One of these nurses was contributed by the State Tuberculosis Association. Lack of funds prevented the continuation of this arrangement, and for the past two years the car force has consisted of a woman physician and one helper. This helper has been sometimes a student of social service, sometimes a nurse, sometimes just a capable woman.

The two rear sections of the Pullman were converted into tiny living quarters, as it is often impossible to secure satisfactory accommodation outside. As many conveniences have been installed as the restricted space will permit. The wiring of the car is such that it is always possible to attach to the city circuit where there is one. This makes it possible to use a grill, fans, and so on. The workers usually become quite attached to the "play housekeeping" and prefer living on the car to going outside.

During the first three years the car stopped at almost every station and the length of the stay varied from one day to two weeks, according to the size of the place. This year the cost of mileage and moving was raised and it became necessary to limit the stops to towns of five hundred population or over, and the length of the itinerary was also shortened. It has made two small towns or one large town each week.

Features of the Exhibit

The car is fitted with four long exhibit tables with built-in cabinets underneath for literature and supplies. On these tables are arranged various graphic exhibits and several chart racks. A row of charts hangs on a level with the adult eye. The curved space above the tops of the windows is also filled with charts.

The exhibit is arranged by subjects as follows, beginning at the front entrance:

Left Hand	*Right Hand*
Foods	Tuberculosis
Teeth, tonsils, and adenoids	Communicable diseases
Child care	Homemade playground
Play	Exercise and posture
Venereal disease	Infant and prenatal care
Sanitation	Examination quarters

The accompanying photographs will give an idea of the detail and arrangement of the exhibit.

Method of Operation

Advance publicity is secured by letters written to the mayor, city and county superintendents of schools, a leading club woman, health officers, and newspapers. These letters explain the purpose of the car, give the itinerary, and solicit cooperation. Data are furnished for newspaper publicity. On the arrival of the car attractive framed posters are placed in the store windows.

The General Program

On arrival, a citizens' committee usually visits the car and proffers assistance. In the absence of this courtesy, the car staff telephone the individuals who have responded most cordially to the correspondence.

A conference of leading citizens is usually held on the car the first evening of its stand. The local situation is

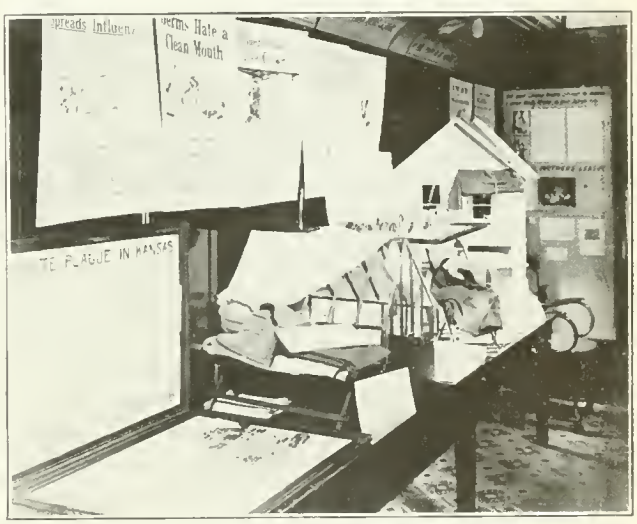


Fig. 2. The objective appeal of the model open air sleeping quarters finds immediate response on the part of the children. Graphic charts promote hygienic habits.

discussed and it is determined how the car can best serve this particular community. Usually it is arranged to hold one or more public evening meetings. A speaker or a film may be sent from the State Board of Health for this purpose. Sometimes the car physician is invited to speak at regular club meetings. Ocasionally it is arranged to open the car for an evening and explaint the exhibit to business men and others who cannot conveniently visit it in the day time.

The superintendent of the schools is always instructed by correspondence to send the school children by grades in charge of their teachers. Each grade spends one school period; the forenoons are reserved for the schools. The exhibit is explained and usually all the children are weighed and measured. When time and the size of the groups permit, the mouths are also examined.

The curved space at the top of the car is filled with charts. The car is fitted with four long exhibit tables, and health pamphlets are distributed to those who desire them.

The afternoon is open to adults and mothers with children of the pre-school age. A special effort is made to examine these children and confer with the mothers. The car physician takes care of such examinations while the assistant explains the exhibit to other visitors.

A great deal of free literature is distributed, discrimination being used to place it in the hands of persons evidently interested in the various subjects. A table is set with an assortment of books helpful to mothers. A pad of paper and pencil invite the taking of title and publisher.

What Has Been Accomplished

(1) *Community Awakening.*—While this is always an intangible thing and due to a complexity of causes, the fact remains that in various communities leading citizens have said that the visit of the car crystallized community initiative to the extent that some worth while thing followed. In one town a school nurse was hired, soon followed by a community, and later by a county nurse. Nn a number of communities public health nurses soon followed in the wake of the car. Projects in community sanitation, recreation, better quarantine, better public health service, and better school hygiene were distinctly furthered by the work of the car.

(2) *Individual Help to Mothers.*—The car affords an opportunity for many mothers to get help with their individual difficulties which they otherwise could not get. Many instances of pathetic ignorance on the part of mothers and tragic handicap to their children come to the car. Parents sometimes drive many miles to get this coveted advice.

(3) *The Instruction of the Adult Public.*—One of the most stimulating experiences which comes to the car worker is the satisfaction of hearing some farmer say while looking at the soil pollution exhibit, "Well, now. I believe that's just what's the matter at our place. I never thought of that before." One such man refused to give his address. "I'm afraid you'd come out and see my place if you knew where I live, and I sure would be ashamed. I want to beat you to it and get it fixed up."

School directors stand about the rural school bubbling fountain and the sanitary privy and discuss improvements. The miniature septic tank is a never ending source of interest to rural householders, and the indoor sanitary toilet to their wives.

(4) *Help for the Children.*—The great work of the car is with the children. They grasp everything—personal, school, and community. They go home and bring their parents. Now and then a school child will go home and bring back a little brother or sister for appraisement.

The value of milk to eke out an insufficient dietary, and its place in the food of a growing child are emphasized by this story of its equivalent in other foods.

An object lesson in training. Good health, the right environment, and directed activities take care of the future citizen. The children are always eager, alert and interested.

Individual difficulties may be brought to the car and there is interested eagerness to receive the coveted advice. In matters of general sanitation, the people are told what is wrong and wherein lies the remedy.

One of the car physicians, Dr. Blanche Hopkins, says, in writing of the car, "We found children most enthusiastic about health work, proving that if they are given half a chance they will become Modern Health Crusaders and sanitary police. I believe that health work properly presented to school children will do more to clean up a town in a month by inspecting food supply, disposal of garbage, and such agencies, than all the laws and regulations a town council can pass in a year. A few examples of the children's enthusiasm are as follows: We were discussing flies and manure piles when someone broke out, 'Manure piles! Did you see that awful livery stable right up the street, almost on the main street?' And as I seemed to doubt, a dozen voices at once tried to describe the location. It was suggested that a committee of school children wait upon the mayor to convince him that many sick babies might result from the flies born at the manure piles, for the children had learned how flies carry disease to the baby.

"At another time, a group of children told me about their poor water supply at school. Their tank having leaked, it was resting and rusting behind the school house. The teacher had frequently reported this to her Board. We asked the children to call a meeting of the Board at the car in order that we might discuss the need of good water for the school. The children never rested for two days until they had rounded up the School Board, and then they hung around in order to hear what the Board would say.

"A few hours before we pulled out of one city a very busy merchant came to the car and said: 'My children have given me no peace day or night since this car came to town, and I thought best to come and take a few lessons in health myself. Another time a father reported that when he and his wife retired to the second floor for the night, a blast of cold air struck them. He said, 'Mercy, what is the matter up here?' His wife replied, 'Oh, nothing. They have been down to the Health Car.' Upon investigation they found the four children peacefully sleeping with every window wide open. The children had read the sign 'Sleep With the Windows Open,' and had seen our models of sleeping porches. The father considered it a good joke upon himself. We talked to the children about babies who were not properly fed and who had no chance to grow. That week the school children personally conducted a young mother and her child to the car. The child, though two years old, had never walked, due largely to the fact that he had not been fed properly.

"It was our custom to show the children the car by taking the regular classes with their teacher. We arrived at a small town on Saturday. For some reason the principal of the school had neglected to advertise the car. Saturday being a holiday, it was impossible to reach all the children. The ten year old son of the mayor, evidently well schooled in civic duties, took upon himself the task of advertising the car. He came at intervals, carrying one or two on his bicycle, several children bringing up the rear. We taught him how to measure and weigh. With an assistant he wrote down the amount of any child under weight. When he found one under weight, he promptly said, 'March over to the doctor, open your mouth, and let her see what is the matter with you.' All day long this little fellow worked, bringing relays of school children. The parents realizing the enthusiasm of the children, came out in the afternoon to see the exhibit.

"Toward the latter end of the last trip of the car, the physician asked the teachers to have the children write up their visit and let her read the papers. These papers

were most suggestive—a couple, selected at random, are appended. These papers have given the State Board of Health an inspiration for remodeling the exhibit before it starts out again, with the purpose of placing greater emphasis on positive health concepts. More dolls, more miniatures, and graphic models will be used. The aim will be to make the major part of the exhibit self-explanatory to a fifth grade child, and give him a consecutive and unified health story.

By a Fourth Grade Boy

This was a health car. Dr. Crumbine sent it out into the state of Kansas to prevent people from getting diseases. We should get plenty of fresh air by sleeping on the porch and leaving your window open at night so we won't get tuberculosis. I do not want to have tuberculosis. The germ might live in an old dirty house. If we let tuberculosis go too long it cannot be cured and if you eat healthy foods and get plenty of fresh air and right kind of exercise it can be cured.

We should breath through our nose. If we breath through our mouth it will make our teeth crooked. We should wash our teeth to get all the food from out of between our teeth. We should be careful of the water because it may have germs in it.

A well should be placed on a high place because the germs won't get in the well. Toilet should be screened with wire. Flies carry many germs. We should poison a fly. Milk is our best food. Our food should be clean. We should eat less meat and more vegetables.

You should keep your body warm in the winter.

By an Eighth Grade Girl

The second week in December the Kansas Health Car visited Goodland. On December 11 the boys and girls of the seventh and eighth grades were permitted to visit it.

Upon entering the car you are under the impression that you are visiting a display of doll houses. But they are miniature tuberculosis cottages. They show how those afflicted with this terrible disease should live. In these houses or on the porches were miniature cots, such as tubercular patients should sleep on. Fresh air, nourishing food, and rest are the best cures for tuberculosis. A map showed the number of cases of this disease in Kansas. It was very strongly impressed on us that tuberculosis is a curable disease and a preventable one.

We passed on and were warned as to the danger of the many contagious diseases. We learned that there have been many more deaths from measles than from scarlet fever in Kansas, although scarlet fever is much more feared. People do not use enough precaution with measles, or other diseases that are catching.

On the other side were foods both helpful and injurious. One thing which attracted our attention was a quart bottle of milk which had ribbons fastened from it to different plates of meat, to show that one should get as much nourishment from one quart of milk as from all these meats.

We then saw where they had displayed best amusements and comforts for children and babies, also proper clothing for babies. Two babies were examined while we were there, which was very interesting. One very economical thing was a baby carriage made of two clothes baskets. One is used for the carriage and another is cut in two and half used for the hood. It was enameled white and lined and was very neat and comfortable looking. Almost anybody could make one.

There were many other things of interest such as proper sewerage and other health problems.

We were then weighed and found we have one perfect girl and one perfect boy in our class. I was four pounds too heavy.

Everyone I am sure enjoyed their visit to the car and received a great deal of good from it.

Referendum on Chiropractic Measure

A petition has been filed in California to place upon the ballot an initiative measure creating a chiropractic board and providing for the licensing of all chiropractics practising at this time. The measure will be voted upon at the next general election, November, 1920.

MEDICAL PROBLEMS IN PENNSYLVANIA

Defects are largely correctable if treated in time, says Dr. John B. McAlister, in the January issue of the *Pennsylvania Medical Journal.* Health work should begin with the children whom we force to become educated but allow to become physical unfits because good education is compulsory, while good health is optional. When the public understands how diseases may be prevented, health laws will be revamped and they will be enforced.

Dr. McAlister considers the expenditure by the State of Pennsylvania of $10,000,000 annually for the care of its dependents and the treatment of sickness as a colossal waste made necessary largely by the neglect of sickness and its consequences. Hospital care is inadequate and badly distributed. The cost of ward beds is beyond the means of half the employees of the state, and 900,000 persons in a single year seek free dispensary treatment in Pennsylvania. The organization of the medical profession for the state and correction of the sickness problem Dr. McAlister considers the most crying need of the time.

CONGRESS ON MEDICAL EDUCATION AND LICENSURE

A three day session of the Annual Congress on Medical Education and Licensure was held under the auspices of the Council on Medical Education of the American Medical Association, in Chicago, in March, with about two hundred fifty delegates present. A well arranged program was presented, symposiums being arranged on the several subjects to bring about ample discussions. "The Needs and Future of Medical Education" was introduced by Dr. George E. Vincent, president of the Rockefeller Foundation, New York City. Dr. Walter A. Jessup, president of the State University of Iowa, Iowa City, presented the subject of "The Larger Function of State University Medical Schools." "Research in Medical Schools" formed the contributions by Dr. Oscar Klotz, professor of pathology, University of Pittsburgh, School of Medicine, and Dr. G. Canby Robinson, dean, Washington University School of Medicine, St. Louis.

The subject of medical licensure was presented by Dr. David A. Strickler, president of the Federation of State Medical Boards, Denver, Mr. Francis W. Shepardson, director of the Department of Registration and Education of the State of Illinois. Dr. Louis B. Wilson, director of the Mayo Foundation, Rochester, Minn., and Walter L. Bierring, secretary of the Federation of State Medical Board, Des Moines, Ia. discussed graduate medical instruction. There were reports on the teaching of premedical sciences, the program on the whole providing the best conference that has hitherto been arranged.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

ORTHOPEDIC NEEDS OF CLEVELAND

THE hospital and health activities of Cleveland have been the subject of a recent survey for the purpose of determining to what extent, individually and collectively, they meet the existing needs and of discovering how the usefulness of present institutions may be extended by "reasonable changes either in the division of labor with other institutions, the volume of work done, or the methods of hnadling the work."

The survey involved at estimate of the needs of the city for the care of certain classes of sick. Such a study would include as well as a more or less extensive study of the community in order to determine the normal needs and to outline the character and functions of the institutions that would best serve the city.

The pressing need of more specialists and more specialization in orthopedics was pointed out at a recent meeting of the Cleveland Hospital and Health Survey by the Director, Dr. Haven Emerson, former Health Commissioner of New York City.

Dr. Emerson says there is immediate need for an orthopedic or reconstruction center in some central location in Cleveland. In addition to central social service facilities for cripples this center should provide a brace shop for the service of all hospitals and dispensaries in the city and a physical training department to which orthopedic and other patients needing physical training methods can be sent. This orthopedic center should contain a central information bureau, a social service department, an admission bureau for distributing patients to convalescent homes, an employment agency, vocational training, offices for headquarters for transportation of patients, offices from which home industries for cripples are directed, and an officer for the administration of artificial limb funds. A Department of Physiotherapy will be needed to take care of special developmental exercises for cripples, muscle training, and massage.

The second great need of Cleveland, as seen by Dr. Emerson and the Survey, is a great convalescent center for cripples. It is planned to set up this through an enlargement of Rainbow Hospital in the suburbs of the city which is already used on a small scale for crippled children. All the hospitals will direct their convalescent patients to this center. The hospital will be planned with beds for the following convalescent cripples: 150 children, twelve years of age and under; 100 adolescent and adult males; and 50 adolescent and adult females.

Resident orthopedic medical service is to be provided at this center with which the orthopedic surgeons of the different Cleveland Hospitals will cooperate. The Survey has brought together the orthopedic surgeons of Cleveland in an orthopedic council to be created under the Association for the Crippled and Disabled. The administration of the entire program is to be under the Association for the Crippled and Disabled.

Dr. Emerson pointed out the great need of orthopedic specialization. He said that "orthopedics as a science, is in its infancy in Cleveland, there being a scant half-dozen of specialists limiting their practice to orthopedic service, whereas there are forty prominent specialists in the city of Boston in active practice."

The means for such a program are provided by the Community Fund, the campaigning organization which has financed private social and hospital service in Cleveland. The matter of capital account for buildings and other equipment will be taken up by the Community Fund. The direct control of the Hospital Survey is under a committee of the Hospital Council, Mr. Howell Wright, Executive Secretary of the Council, acting as secretary of the Survey Committee.

WOMEN IN INDUSTRY

(By Our London Correspondent).

At the British Sanitary Congress, held at New Castle-on-Lyne in the late summer of 1919, many problems of great importance relating to industrial hygiene were exhaustively discussed. Sir Thomas Oliver, M.D., the president of the Section of Industrial Hygiene, passed in review the numerous advances in sanitation and hygiene which have rendered the lot of the manual laborer, the tender of machinery, and the artisan, not only tolerable, but even comfortable.

In this connection a digression from the actual subject in hand may be made to lay stress on the fact that, so far as money earning capacity is concerned, the worker with the hands is in an enviable position at the present time. He earns large wages and is not compelled to, or rather does not, as a rule, expend much of the money in keeping up social appearance. His position now is in direct contrast with that of a member of the group designated in England as the middle class, and who now are really poor. The professional classes earn little or no more than formerly; taking into consideration the depreciation in the value of money and the high prices, they are worse off, and custom has ordained that they must, what is called in the United States, "put up a good front."

Discontent a Natural Reaction

However, because the working man and woman are better paid, and properly so, does not mean that every effort should not be made to render the conditions under which they work healthy and congenial, for it is a self-evident truth that the healthy, contented worker is a valuable asset of the country in which he lives and that much of the social unrest and discontent which is such a conspicuous and unfortunate feature of the times in which we live is largely due to unhealthy and distasteful conditions of life. A economic—even more than economic—a public health problem of the first significance with which we are confronted is that of the status of woman. Long before the war, and in England in particular, woman was asserting herself in every station of life and was claiming the right to be placed on an equality with man. The war brought her into special prominence. In many respects during that trying period she may be said to have proved the justice of her claim. It is likely, nay certain, that without the aid of women the war would not have been won by the Allies. Therefore, the only part of Sir Thomas Oliver's very able address to which attention will be directed is that in which he deals with women's work from the standpoint of hygiene.

As Oliver says, the war has shown not only the important part played by women in munition factories and in other trades, but their ability to perform certain kinds of work for which hitherto they had been considered physically unfit.

Women Are Ambitextrous

The speaker drew attention to a characteristic of woman as a worker which does not seem to be known to the multitude and which is assuredly not generally recognized: namely, that the power of her two hands is more nearly equal than it is in man. She is not only more ambitious than her brother, but in her there is a slight predominance in favor of the left hand, attended by a greater resistance to fatigue. Although the feminine sex has always been regarded as weaker, woman from the point of view of resistance is not the weaker. Moveover, it is to be noted that the introduction of automatic machinery, reducing to a minimum the amount of skill and effort required on the part of operators, has made possible the displacement of skilled by unskilled labor and the replacement of adult male labor by that of women and young persons.

As to whether women are more liable to sickness than men, statistics gathered before the war say that after the age of twenty there was a larger number of cases of sickness per one hundred persons in women than men, but beyond the age of fifty-five more sickness occurred among men than women.

The numerical proponderance of women over men is greater in Great Britain than in any other country. Dr. Murray Leslie, a well known London physician, cast something like a bombshell into the feminine ranks when, in a lecture he delivered a few days ago at the London Institute of Hygiene, he declared that no real social rest can exist without feminine contentment and, where women form the bulk of the population, as in Great Britain, the effect of their sex preponderance seems to be almost wholly injurious and to have little compensating advantage. Dr. Leslie asserted that the disturbing factor of a large female excess in the population of Great Britain has been aggravated by the deaths in the war of men of the age group which represented either potential or actual husbands and fathers. At a conservative estimate there are now more than a million excess of females of reproductive age. According to Leslie, female preponderance has resulted in a large and increasing number of the physically and intellectually fittest women of Great Britain being forced into the labor market, while less provident women of the unskilled workers class married and had large families. The nation is thus deprived of the best potential mothers, and the birth rate is smallest in the best elements of the population.

The preponderance of women is, of course, not so marked in America as in Great Britain, although up to the time of the war there were more women working in the former than in the latter country. However, in both countries the woman question from the health and economic points of view is one the importance of which it is impossible to over-estimate.

The Disproportion of Sexes

Where there is such an immense disproportion of the sexes as in Great Britain, the outlook is far more serious. It signifies, in the first instance, that 1,000,000 women with all the strong sexual instincts cannot be married, and these circumstances must lead and have led to a great increase in the prevalence of venereal disease. Miss Norah March, editor of the *National Health Review*, speaking at a great meeting held in the London Mansion on February 5, 1920, to discuss the increase of venereal disease, said that women have been clamoring for sex equality for years, and now that she has partly obtained it, the effect is otherwise than anticipated. They have not raised the standard of morality but have descended to man's standard. There is no doubt that in this country, at any rate, the opportunities afforded women for engaging in industrial work, and thus becoming independent, will make of the venereal diseases a very grave industrial problem. While it may be an advantage from the economic standpoint that a woman should have every chance given her of earning a living by industrial work, it is by no means clear that the health of the community will benefit thereby. Industrial work is not conducive

to the rearing of healthy children and, in addition to the unmarried women, large numbers of married women work in factories. It is obvious that the children of these women are greatly handicapped with regard to their upbringing and, as healthy children are of peculiar value at the present time, better means for properly bringing up the children of women industrial workers than at present exist must be devised. The advent of women into industry is not unexpected but the economic situation has not adjusted itself as yet, and the matter of industrial hygiene is considerably complicated by the feminine flooding of the labor market.

HYGIENE AND SOCIAL UNREST

By Our London Correspondent.

The world is so topsy turvy just now and social unrest and industrial are so apparent and rampant, that one can think and talk of little else. The object of all wise and farseeing persons in Great Britain is to induce the population and especially the working classes to settle down to something like normal conditions. Mental hygiene is required by industrial workers as greatly as is physical hygiene. Mr. Grant Ramsay, speaking at the London Institute of Hygiene on February 11, 1920, said hygiene aimed at a healthy mind in a healthy body, and it would help us to understand the psychology of the times if we reverse the common conception of sanity, which assumes that all but the few in asylums are perfectly sane. The world has never been so insane as it is today. Young men and impressionable women were not affected, but all have come under the influence of the terrible strain of the past few years.

Crime and immorality are rampant and, as mental disease can be infective, the outbreak of crime should be dealt with as an epidemic liable to spread. There is good reason for shorter hours at the present time, and even six hours a day are too long for certain classes of work; but, with better organization, better feeding, better housing, and exchange in work, there is no reason why any fit man should not do twelve hours a day. That might be called intensive labor, and would require to be entered upon in the spirit of a good dinner, but it would benefit the worker himself and greatly help the country.

NEW HEALTH LAW IN NEW MEXICO

At the recent special session of the New Mexico legislature a new law was passed supplementing the Health Code of 1919, and providing for the levying of special taxes for health purposes, and for the appointment of employees by health authorities.

The law of 1919 created a state department of health with broad powers. This state body has passed regulations regarding the reporting of births, deaths, and morbidity following the model law; and, also, regulations for the control of communicable diseases, prohibiting the use of common towels and common drinking cups, prescribing methods for the disposal of sewage and outlining restrictions for food handling establishments and water supply plants The local health officers, however, were without sufficient compensation to enable them to devote sufficient time to their work. In order that they might be adequately paid, the new bill was passed by a large vote.

The campaign for this measure was conducted by the New Mexico Public Health Association. In view of the fact that New Mexico did not have a state health department until 1919, this further progressive step is significant.

An act authorizing employment of health employees and the levying of special taxes for certain health purposes:

Be it enacted by the legislature of the State of New Mexico:

Section 1.—That Chapter 85, Laws of 1919, be and the same is hereby amended by adding thereto the following sections:

Section 36.—Whenever, in the opinion of the Commissioner of Health conditions require the employment of persons in addition to county and municipal health officers properly to execute the health laws, rules and regulations in counties and incorporated municipalities of the state, the governing bodies of counties or incorporated municipalities. . . . may employ such additional employees as the Commissioner of Health shall designate and their compensation shall be paid from the county or municipal "Health Fund," as the case may be. . . .

Section 37.—Boards of county commissioners, annually, at the time of levying other state and county taxes, may, in their discretion, levy a special tax upon the taxable properly in the county, exclusive of taxable property within incorporated cities, towns, and villages not in excess of one-half mill on the dollar of assessed valuation of such property, and the proceeds thereof shall be covered into the "County Health Fund," and be used only to defray the cost of (1) carrying out the health laws, rules, and regulations within the county; (2) employment of the County Health Officer; and (3) the employment of additional employees of the County Health Officer.

Section 38.—The governing authorities of incorporated cities, towns, and villages, annually, at least ten days prior to the time of levying general state and county taxes, may, in their discretion, certify to their respective boards of county commissioners, a special tax not to exceed one-half mill on the dollar of assessed valuation of taxable property within their respective boundaries, and the County Commissioners thereafter, at the time of levying other state and county taxes, shall levy such certified tax upon the taxable property of such incorporated city, town or village, and the proceeds thereof shall be covered into the "Health Fund" of such city, town, or village, and be used for defraying the expenses of (1) carrying out the health laws, rules and regulations in such cities, towns, or villages; (2) employing the Municipal Health Officer; (3) applying towards the payment of the salary of the joint health officer appointed under Section 13 of said Act; and, (4) employment of additional employees of such municipal health officer.

Section 39.—The levies provided for herein shall not be subject to nor the rate thereof included within the provisions or limitations of Chapter 17, Laws 1919, nor shall anything contained herein constitute a limitation upon the right of counties, incorporated cities, towns, and villages to pay from general funds the expenses mentioned in this Act.

Section 2.—That it is necessary for the preservation of the public peace and safety of the inhabitants of the state that the provision hereof shall become effective at the earliest possible time, and therefore an emergency is hereby declared to exist, and this Act shall take effect from and after its passage and approval.

GENERAL NURSING COUNCIL

The first English General Nursing Council to be appointed will consist of twenty-five members who will hold office not less than two years. The members of the finally constituted Council will remain in office five years. The Act provides for the enrollment of nurses, and the General Nursing Council will define standards of training.

TOMORROW'S HEALTH—THE DOCTOR'S DILEMMA

By THEODORE J. WERLE, Milwaukee, Wis.

A full measure of medical service is required by the public and must be supplied by the profession. Its administration will differ from that of the past.

The leaven of education is becoming active. Public problems that formerly could be dealt with en masse and solved with a sort of blanket remedy now meet with an awakened public interest which requires their solution on a more scientific basis.

In the reorganization that is sure to follow no one class can rely upon precedent, or custom, or tradition to make its tenets stand; but all must interact and work out in perfect mutuality a more satisfactory organization than that hitherto achieved.

ALMOST any doctor one might approach on the subject will agree that the only logical way to treat disease is to prevent it. "But," he will say immediately after granting that hypothesis, if he is an average practitioner, "in practice it won't work out. The public will not permit it. The people are not ready to take prevention seriously."

"Can you estimate about how much money will be spent in the United States in 1920 for organized health work?" I asked a public health official the other day. After several minutes of mental calculation, he said, as if astonished by his own reply: "Why, it must run well over a hundred million."

A hundred million dollars, or thereabouts, to bring home to the American public, in one way or another, the one fact that disease is preventable represents rather a tidy little sum, and would naturally lead one to wonder whether, after all, the public is not showing a great deal of interest in preventing disease.

I am not, however, offering a hundred million dollar guess as an answer to what I have intimated to be the conviction of medical practitioners. Whether or not the sum is a hundred millions, or seventy-five millions, or fifty millions, is quite immaterial to my present purpose. The fact remains that the American public is engaged in a tremendous, and steadily mounting effort to prevent disease, an effort which for magnitude, originality, and resourcefulness has no equal anywhere. Men who should know a good deal about it are fairly well agreed that for 1920 there will be spent between seventy-five cents and one dollar per person in this country—money dedicated to teaching the principles of disease prevention, and raised from public, semi-public, philanthropic, and business sources.

The movement is largely an educational one, and is full of advertising. Health is the product advertised, and to use an advertiser's phrase, "The campaign has been pulling its head off." Therein lies the doctor's dilemma.

Medical altruistic zeal through bacteriologic research has given us our conception of the preventability of germ-caused diseases. Yet the medical men in the mass do not seem to have been following up the tremendous social potentialities of their findings. They apparently have preferred to remain primarily curative agents while disease prevention has become separate, to a degree, from the profession and dependent for its effectiveness on public approval. Today, with each disease added to those known to be germ-caused, physicians give ground from the old curative field, and yield it to prevention, a force which is now rapidly gaining the warmest public approval, and which is mounting in potential importance well over that phase of health work to which medical men as a body have been confining themselves: namely, the diagnostic and curative. In fact, when the American public becomes sufficiently enlightened to judge values in its own health problems, the curative field in public health, now the private practitioner's enterprise, is more than likely to become just a part of the great publicly owned and publicly directed preventive work; and I do not believe the day of that judgment to be more than a generation in the future.

The Physician Shall Lead Them

For leadership in this much to be desired prevention, the public has naturally turned first to its physicians. But the idea, while acceptable in the abstract, has not entirely appealed to the practising physicians when the project was to be applied to their daily business. They have been slow and unwilling to accept the leadership. There are plausible reasons for such an attitude in the physicians; reasons, no doubt, grounded in the history and training of the medical profession; which reasons, however, are not comprehensible to a people educated in the gospel of "getting results."

There is in the lay public not alone a distinct demand that disease be prevented, but a further

demand that the economics of medicine be revised to put medical service in a position to prevent it; and there is a growing consciousness in the layman's mind that his family physician and most every other physician are doing very little about it. The high cost of medical service is impressing the value of prevention on the layman, and is raising this question of economic organization of private practice. One needs to refer only to the available reports of sickness surveys to find justification for the charge that private medical enterprise does not meet the social need for medical care. Let us clear in our minds that this is not an indictment of medical men at this point, but of the scheme under which they are operating. Regardless of any defense or explanation that private practice may offer, the great charge seems to stand as a fact that upwards of one-fourth of those seriously ill enough to be confined to bed, go without medical care. Unless medicine as now organized can adjust itself to meet the challenge of the uncared for sick, the medical profession must expect the lay public to cast about for a scheme of medical service which will operate with better than seventy or seventy-five per cent efficiency.

Something Is Going to Be Done

As a lay medical worker, I have been in public health work for nearly ten years and never before have I seen more interest in health. As I watch the public in my contacts, I see crystallizing the decision that, with or without medical leadership, something is going to be done about this business of promoting health.

Within my own recent experience there have occurred several rather significant incidents. In a small city of about 20,000 population, in one of our northern states, a group of club women, known as the Health Committee of the Women's Club gathered some facts relating to disease and health conditions in their city. They decided that something should be done to reduce the cost of medical service for certain types of families in their city, families forced to go without medical care except in acute illnesses, yet families that were not paupers. After several meetings with the physicians of their county the ladies found that not alone could they expect no plan from the physicians, but they were denied cooperation by the medical society on any practical basis.

The women were convinced of the fairness of their proposal and were determined to put it through. Here is the significant thing. They did put through their plan—a public health dispensary—in face of the doctors' opposition. The public never for a moment accepted the medical men's viewpoint, and the dispensary is operating today with splendid success.

Many plans are being offered and discussed in a search for the new medical economies. I shall not presume to say what that new plan might be. One who realizes the seriousness of the situation is likely to be slow to accept or reject any plan—and these vary from private enterprise to socialism. Certainly the lay public will in the future not be satisfied to permit medical science to be so decidedly in private hands as it now is. Whether the new scheme will be a radical one, a more or less ruthless departure from the present, or a plan based on careful consideration of the demands of the profession, will depend very largely on the medical men, themselves.

Attitude of the Lay Public

I know very well that the leaders in the profession have been calling attention to the attitude of the lay public in this matter. They are aware of public sentiment, and they have counselled wisely that the only true course for the profession lies in taking the lead in the formulating of new policies; but, and I feel sure these men will agree with me, the doctors have been slow to heed the call of their prophets. In fact, if they have been heard at all, the prophets don't know it.

Although some of their own men have been sounding warnings, the recent action of a group of New York State physicians in forming what they call a Physician's Protective League to fight health insurance as a menace to the profession, is an example of the kind of reaction which will deprive medical men of the leadership in medical reform—a leadership which the public is willing they should have. The medical profession hardly seems to need a protective league; wouldn't an "Expansion League" serve better? These men are like the traffic policeman who bawls out at an auto owner, stopping his car in a restricted district, "You can't park your car there." That policeman certainly is not improving the parking situation. What the man in the automobile wants to know is where he can park his car.

Germany and England before the war gave their physicians an opportunity similar to the one now begging American doctors for helpful attention. As we know, the European medical men persisted in the attitude the New York State men have taken, and with what disastrous results. They fought the new order to the last ditch and lost all voice in the forming of the new plan, and there was a new plan.

Permit me to quote from the Annual Address[1]

1. Address by Dr. H. E. Dearholt, Wis. Med. Jour. Vol. 16. No. 5. October 1917.

of the president of Wisconsin's State Medical Society, delivered in 1917. This address was a call to the helm of socio-medical affairs. He literally begged medical men to see the great opportunity lying before the profession.

> The state of war in which this nation exists is daily teaching us new truths and giving new significance to old truths. From earliest childhood we have been taught that America belongs to the people. Some accepted the ownership as naturally and with no more gratitude nor sense of obligation for the privilege it afforded than a child commonly exhibits to his parents for the living, education, and other advantages they furnish him. It took a national campaign of education to arouse the public consciousness to the justice and rightness of the principle of military conscription—to drive home a well defined realization of the fact that the people belong to the country no less than the country belongs to the people. And right here, though not all of us have yet heard it, the death knell was struck for vested rights in the private possession of the benefits of medical science and in the privileges of health. . . . It is a short step from this point to conceive that medicine belongs quite as much in the domain of public ownership as do highways and waterways and all other forms of public property.

New Situations Arise

To a layman who works with it, and who knows it as individuals, the medical profession is an extraordinary body—closely knit by a splendid code of honor, yet sorely in need of unity. In matters pertaining to their ethics one finds very little deviation from a system universally observed; yet they rarely organize with one another to meet a situation affecting them from without. Physicians as a whole, seem to a layman to feel very secure in their profession and its standing. They seem to rest on a sense that, somehow or other, medicine will come through all right—it always has.

As seldom has happened before in their history, this campaign affecting the doctors is based on fact, not prejudice. This campaign is not directed against the science of medicine or any of its adjuncts, such as vivisection. It is directed against the present scheme of the practice of medicine. The public is dissatisfied with this scheme not for the things it is doing, but for the things that it is not doing. In other words, medical practice is much in the position of a man whose job has grown faster than he has. The man must do something pretty soon or his boss will. This is the dilemma. The test of medical men now seems to me to lie in whether or not they are going to swing up into the bigger job. Will they seek and maintain the position of leadership, as they should, in the larger enterprise, the social and economic reorganization of the forces controlling health?

Will they do as so many of our geniuses who labored ceaselessly for great truths, and when they have found them, permitted the fruits of their labors to pass them by, enriching others? Or, will they do as Thomas Edison, develop to its fullest social and economic effectiveness each new discovery of their laboratories? The vast advertising campaign of which I have spoken is directed at popularizing just that enterprise which the physician has been dodging, disease prevention. Unless he changes his attitude, the doctor will find the great power of prevention in the hands of others, while he will be its servant in one of its departments.

Physicians should not lose sight of the fact that a considerable proportion of the lay public is already engaged in some part of this marvelously complete health campaign. No merchandising scheme with its jobbers, wholesalers, retailers, canvassers, and demonstrators was ever more complete, or will reach nearer 100 per cent sales than this loosely organized, frequently overlapping, sometimes conflicting effort of the public to sell itself the prevention idea. And this fact is very clear—the idea is "getting over."

As their own prophets have called out repeatedly, medical men seem to need a more closely knit and centrally directed working organization, an organization equal to dealing with mass health problems. They need an executive secretary, as it were, one who should be able to conscript into the service of medical practice the ablest thinkers and economists in or out of the profession. Behind such leadership the profession should easily hold first position in any fundamental reorganization which the practice of medicine may be facing. These men should seek to unify the physicians behind their leaders. They should seek to reconcile the private practitioner's point of view with that of the lay public.

Many doctors see medical service only as a means of earning a livelihood. With them it is a matter of bread and butter. They are not aware of their tremendous importance in the social order. The present scheme of things meets their needs and they are suspicious of innovations. On the other hand, health and disease are to the layman a matter of life and death, not merely bread and butter. The layman feels that there are other things a doctor might do if he does not like the returns he gets from the practice of medicine, but a life once lost can not be replaced. And just now, on the doctors' own statements, too many lives are being lost needlessly. So the rank and file of medical men will need to realize that a mere standing on their present rights will not stay public demand for reorganization.

Is it not the province of the medical profession to lead the way to the new order?

LAW FOR THE DOCTOR*

By LESLIE CHILDS, Attorney At Law, Indianapolis, Ind.

Alleged Deceit and Fraud Upon the Public as Grounds For Revocation of Physician's License

In Macomber vs. State Board of Health, a Rhode Island case, reported in 28 R.I. 3, it was attempted to revoke a physician's license on the grounds of alleged conduct of a character likely to deceive and defraud the public. The case is an interesting one of its kind, and an excellent example of the varying value placed on the same evidence by different classes of men.

Dr. William S. Macomber was a physician engaged in the practice of his profession in the state of Rhode Island. In the treatment of various diseases he employed a device known as the "electricure." It seems the doctor advertised the "electricure" extensively and distributed generally the "blue book," which contained, among other things, the following statements:

"The electricure . . . absolutely cures consumption, female complaints, paralysis, rheumatism, heart disease, and all acute, chronic, and organic diseases, no matter what their name or origin. . . . It is no faith cure or necromancy, but is the practical application of the greatest discovery—the giving of oxygen—of this wise age for the cure of all human ills and all ailments of beasts as well, for the principle affects equally all living kind. . . . Let no invalid despair or seek the sea, the mountain, or a foreign shore in search of health—perchance to die—when it can be surely found at home by the intelligent use of the electricure; for cures are wrought by it that, under the old system of medication, are impossible."

The secretary of the State Board of Health preferred charges against Dr. Macomber, based on the above and similar advertisements, charging conduct unprofessional and of a character likely to deceive and defraud the public. The case was tried before the State Board of Health, the doctor was found guilty, and his certificate revoked. An appeal was prosecuted to the Supreme Court, and in passing on the evidence contained in the record the following among other observations were made.

"A number of advertisements from Providence papers relating to cures or alleged cures said to have been made by use of the 'electricure,' . . . are produced by the State Board, upon a few of which appear the name of the appellant as 'specialist,' or as 'physician in charge'; also certain circulars and advertisements purporting to explain the 'electricure,' and exploiting in glowing terms its powers in the cure of numerous diseases. It is evidently the intention of the State Board that this Court shall infer, from the language of these various advertisements, that the statements therein contained are untrue, that the claims made are extravagant, and, therefore, likely to 'deceive and defraud the public,' and that Dr. Macomber, the appellant, by allowing his name to appear upon some of them or by distributing some of them to his patients or to inquiring parties has been guilty of conduct as above set forth. Unfortunately, however, the State Board has not seen fit to offer any testimony to show that any one of the statements set forth is untrue in fact, or even that it is extravagant or misleading, or tending to 'deceive' or 'defraud the public.' The evidence is submitted to this Court as if the Court were a body of medical experts, fully qualified to pass upon all the numerous medical questions involved. It is hardly necessary to say that this Court disclaims such qualification, and cannot take judicial notice of such matters, but is bound to form its judgments in such matters solely upon evidence adduced before it. . . .

"The most cogent evidence to show that the appellant had been guilty of 'gross unprofessional conduct, and of conduct of a character likely to deceive and defraud the public,' would have been evidence from some one or more persons that he or they had been actually deceived or defrauded, had been led into expense without adequate benefit, or had been told that they would be cured of any of the various diseases mentioned, and had taken the treatment without results, or with bad results; or that the statements made as to cures actually effected were in fact untrue. The Board has produced no evidence of this character; but, on the contrary, the appellant has produced seven witnesses of apparent respectability and intelligence, none of whom are in any wise discredited or impeached or contradicted, and all of them testify to substantial relief or cure of serious disorders or disabilities. Dr. Macomber himself in his testimony shows that he did not in any instance attempt to 'deceive' or 'defraud' his patients by any extravagant claims or promises, and that he did not demand pay from them unless they themselves were satisfied with the treatment and its results.

"On the whole case, while the Board has succeeded in raising some considerable suspicion in our minds as to the matters in question, we are satisfied that the evidence is not sufficient to warrant the revocation of the appellant's certificate, in that it does not show that the appellant was guilty of such conduct as charged."

The decision of the State Board of Health was thereupon overruled. Justice Blodgett filed a vigorous dissenting opinion from which some of the facts in this article are taken.

*The twelfth of a series of articles on "Law for the Doctor" written for MODERN MEDICINE by Leslie Childs.

MEDICAL MISSIONARIES

An appeal has been issued by the Interchurch World Movement for volunteer physicians for five years' service in Asiatic countries. General practitioners and specialists are desired for service in Turkey, India, China, Japan, Syria, Palestine, Siam, Persia, Indo-China, Malaysia, Philippine Islands, and in Africa. It is announced that more than six hundred physicians are needed. A salary of $3,000 and a home is offered for married physicians and $2,000 for single physicians. All traveling expenses are paid by the organization.

MORTALITY FROM INFLUENZA, 1918

The mortality statistics just published by the United States Census Bureau indicate a total number of deaths from influenza of 228,120, and from pneumonia 162,812, from bronchopneumonia 52,408. These deaths are dis-

Months	Influenza	Pneumonia	Broncho-pneumonia
January	1,589	10,740	5,095
February	1,482	9,277	4,742
March	1,545	11,521	5,385
April	1,977	12,839	5,072
May	870	5,866	2,952
June	287	2,539	1,474
July	193	2,071	1,282
August	156	1,602	961
September	4,404	5,826	1,821
October	113,940	61,900	12,814
November	57,566	21,513	6,086
December	44,111	17,118	5,724

A SAMARITAN QUARTER FOR HOUSING AND EMPLOYING THE SEMI-INVALID

By S. WACHSMANN, M.D., Medical Director and General Superintendent, Montefiore Home and Hospital, New York City; Professor of Clinical Medicine, Columbia University, New York City

THE question of employing partially disabled workers, in the majority of cases, can ultimately be reduced to the problem of either bringing the work to the cripple, or bringing the latter to the workshop. Either method has great disadvantages, which offer such difficulties in practice as to make it almost impossible to reach an economical arrangement in most instances.

If the cripple is to stay at home, some other person has to call for the material and deliver the finished work, thus engaging another member of the family with a corresponding loss of time, expense for carfare, and the necessary amount of bookkeeping, not to mention the possible loss of material, and taking it for granted that in the cripple's home a sanitary and otherwise suitable place can be found to do the work and store the material.

Specially planned houses and systematic placing of houses and factories in the Samaritan Quarter provide for the needs of the handicapped.

There are two ways to bring the cripple to the workshop: An employer may send a coach around to gather the cripples at the beginning of the work day, and send them home in the same way, as is done by some cripple schools. There it is comparatively easy, because children can readily be lifted in and out of a coach; but one need only be present at one outing given to the inmates of a home for chronic invalids to understand the great difficulties of handling adults who can neither stand nor walk. The cost alone of such transportation would exclude this method from practical use for the purpose of making the cripple a wage earner; besides, they would all have to live in ground floor apartments to avoid the extra handicap of stairs.

The other way of bringing the invalids to the workshop would be to house them in dormitories, barracks, or similar arrangements under the same roof with shops or factories. This would mean separate institutional management, which is costly and alien to commercial enterprise. Furthermore, it would deprive the cripple of family life and bring permanent hardship to him and those who are dear to him.

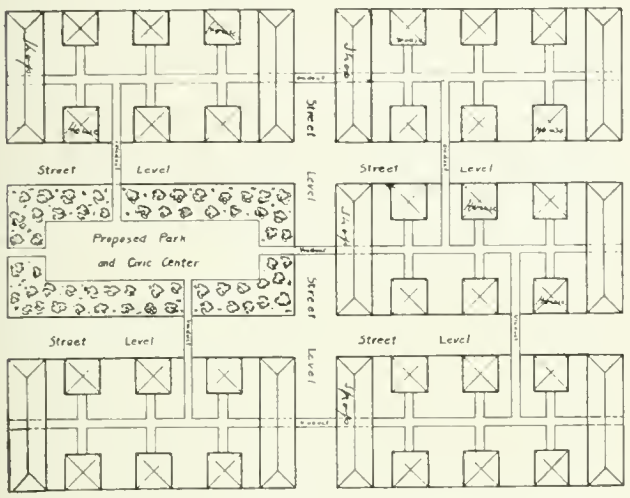
Transportation, in the great majority of cases, is the most difficult problem, because even those who can move about on crutches or with artificial legs have considerable trouble in using congested public conveyances during the usual rush hours, particularly in crowded cities. Wheel chair cripples, who have lost the use of their lower extremities, can rarely travel for any distance or cross streets, nor can they ever negotiate steps or stoops to enter into buildings. People with only one hand are hardly considered as seriously handicapped nowadays, but those who have lost both hands or arms, even with the best artificial limbs, have difficulty in traveling on public cars, while gettnig on or off, paying ing fares, etc. Lengthy traveling to and from work, moreover, is a serious matter not only for crippled persons, but also for those disabled or handicapped by disease, such as cardiacs, consumptives, rheumatics, and others.

The problem, therefore, of utilizing the earning power of the handicapped in a rational economic way can best be solved by bringing the workshop and the cripple near one another, so as to reduce traveling to a minimum of distance and discomfort, without an actual physical combination of shop and home.

To bring about such a proximity between the worker, especially the handicapped worker, and his shop, one will have to deviate from the present arrangement of dwelling places and grouping of industrial buildings. Special reservations for each city, or, on a larger scale, for each county or state, should be built according to a definite plan, which will involve systematic placing of factories or shops and, between them, houses of a special type, lined up in blocks. Smooth connecting roads for pedestrians and wheel chairs will be in the center of the blocks, while regular streets for ordinary traffic will run around the blocks, as usual, except they will be depressed to the depth of the usual viaduct, so that connecting bridges will not interfere with wagons or street cars passing underneath.

The houses will have two fronts or entrances,

one from the street and one facing the block center leading into the second story. These latter entrances will be on a level with the roads, without even a threshold, and the second story of each house will have the rooms constructed with wide doors to admit wheel chairs, also without thresholds, and the bath rooms built in the same way. The toilets might be provided with grip rails, such as are found in homes for chronic invalids or



As the unit grows, the Samaritan Quarter should provide parks, playgrounds, and places of entertainment easily accessible from all points.

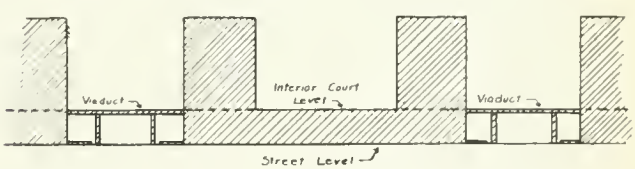
aboard steamers for the victims of seasickness. All other stories could be of ordinary construction suitable for all kinds of tenants, so that the families may remain united. From each block entrance, or better, inside entrance, a path will lead to a wide center road which runs through the long axis of a block. At either end of the block will be an individual building constructed on similar lines, with a street entrance for public traffic and a block entrance for the workers, and without steps or thresholds, on a level with the inner roads. These roads should be surfaced like the driveways in most parks, *i. e.*, somewhat roughened, fairly hard, a tar road with fine gravel, so as to make traveling easy for wheel chairs and to prevent slipping of crutches or walking sticks in wet weather.

Each such block should be a unit and the inner roads would naturally be free from vehicles. In addition to the great advantages for cripples and invalids these conditions would be ideal for children, who could go to school without the parents having to fear that they might be injured by an automobile or a fire engine. To prevent the feeling of isolation in the "block dwellers," bridges on all four sides, level with the roads, will establish connection with the adjoining block, so that the population of the whole reservation can intercommunicate and visit at will, unmolested by public traffic. There will be an elevator in each industrial building, so that the cripples can reach the street and take longer trips, if they wish to do so.

The section as described before should be known as the Samaritan Quarter or some other perhaps more suitable name. Now, right after the war, every community should open a Samaritan Quarter and maintain it. All of these people, while not in need of institutional care, can not exist or work under conditions which were intended for normal individuals. Certain modifications in the constduction of streets, houses, or factories, and an adaptation of the work benches and other equipment will enable the invalid to earn a livelihood and enjoy life almost as well as the normal person. The vocational schools and other facilities for training those who are capable of being educated to a higher level tha nthat of factory hand should also be in the Samaritan Quarter. The schools will do more good there than can be expected if they are located in a busy section of the city. Perfect sanitation, a healthy neighborhood, and good street cars or other connections are necessary, for obvious reasons, to make the Samaritan Quarter a success.

The industrial buildings would be rented to employers in various trades and the houses let in the same way, better and more easily, perhaps, than in many of the congested districts. The entire arrangement will have so many advantages that it may also attract families where there are no cripples. Thus it may help to improve the housing conditions of the working class in general.

In connection with this problem it might be



The Quarter provides smooth connecting roads for pedestrians and wheel chairs. Streets for ordinary traffic are depressed the depth of the usual viaduct.

well to answer the question whether or not it might be advisable to reserve certain industries for semi-invalids. A similar principle might be applied as that in use by municipalities in granting licenses for peddling only to handicapped people.

The financial side, of course, must be studied separately and be subjected to careful scrutiny and calculation. The plan seems so natural, however, and in no way radically different from normal real estate procedures, that in all probability the element of charity will have very little, if anything, to do with it, and the scheme will be rather a sound, self-supporting philanthropy.

ALL-TIME HEALTH OFFICES IN KENTUCKY

A number of counties in Kentucky are taking advantage of the offer of the State Board of Health to subsidize the establishment of all-time public health service. Five counties, Daviess, Christian, Scott, Boyd, and Harlan, have already taken action.

CANCER IN WORKERS ON COAL BRIQUETTES

The authorities in Germany are now collecting data in regard to cancer in persons engaged in making coal briquettes. In the last five years there have been ten cases of epithelioma recorded in a total of 2,500 workers. It was on the face or arm in five cases and the scrotum in five others. Conjunctivitis is also common among these workers.

NIGHT MEDICAL SERVICE FOR PARIS

The Prefect of Police of Paris has organized a service of night doctors for Paris, who will be available from ten o'clock at night until seven in the morning. The number will at first be thirty, to be increased if necessary. Paris is divided into five sections, in each of which a doctor is permanently on duty during the hours stated at a central police station, where a room containing the necessary accessories will be available. The call for the doctor will be made to the nearest police station by the patient. A telephone message will then be sent to the central station and at the same time an automobile will be despatched to take the doctor to the patient. Each car is furnished with a case containing first aid appliances. The medical service is so organized that the turn of each doctor comes once in six days. Labor cases will be served by the midwives attached to the night medical service; if a midwife has to resort to a doctor for help she will be able to requisition his services on the lines indicated. The charge for night visits by the doctor will be a uniform one of fifty francs, except in cases of extreme poverty.

CONFERENCE OF INDUSTRIAL PHYSICIANS AND SURGEONS

The Division of Industrial Hygiene and Engineering of the Pennsylvania Department of Labor and Industry held its Tenth Conference of Industrial Physicians and Surgeons in Harrisburg on March 25, the last day of a successful four-day Safety Congress held under the direction of that Department.

The injured in industry received attention from Dr. Harry E. Mock who presented the problem of the rehabilitation of the industrial cripple, detailing the plan of organization and the work accomplished by the Service League for the Handicapped in Chicago, Ill., emphasizing the three important points to be considered in all work with the handicapped as medical, educational, and industrial; Dr. Frederick L. Hoffman offered a plea for those injured in the course of their occupation by disease, urging the enactment of laws to provide compensation for industrial diseases as well as for industrial accidents, substantiating his arguments by reference to information just recently acquired and not yet published, on the subject of workers in granite.

Dr. C. E. Ford outlined an ideal plan for health education for the workers of our industries pointing out the advantageous relationship to the whole community of even elementary work done along this line in the plant.

The difficult problem of placing the substandard worker was most effectively elucidated by Dr. Irving Clark who classified these workers and submitted a plan whereby these subnormal conditions may be easily and quickly diagnosed and, through the cooperation of the employment department, these handicaps fitted to a suitable job.

To eliminate the malingerer Dr. Judson Fisher asked assistance from the industrial surgeon, the employer, the employee, the industrial accident boards, and the public.

Dr. C. D. Selby outlined a most complete system for the location and equipment of plant dispensaries of varying size and emphasized the importance of standard treatment as well as standard equipment.

The two disease conditions of influenza and cardiac insufficiency were discussed by Dr. Alfred Stengel and Dr. William E. Robertson, respectively. Either one of these papers in itself was well worth attendance at the conference to hear, and will be consulted for years as standards by industrial physicians.

The proceedings of this conference will be published in the near future and may be obtained on request from Dr. Francis D. Patterson, Chief, Division of Industrial Hygiene and Engineering, Department of Labor and Industry, Harrisburg, Pa.

OHIO STUDIES MORAL DELINQUENCY

Youthful offenders in Ohio are no longer to be committed directly to penal institutions, but are now submitted to the State Bureau of Juvenile Research for determination of the underlying causes of delinquency, so that proper medical measures may be employed, according to the March issue of the *Ohio State Medical Journal*. It is the belief of Henry H. Goddard, director of the Bureau, that preventive work in the detection of early peculiarities leading to bad conduct, and directing the education of delinquents into social lines are as much the function of the Bureau as assigning incorrigibles to suitable institutions. The personnel of the Bureau will include the specialists needed to render a complete service.

UNDER-GRADUATE INSTRUCTION IN INFIRMARIES

Signs are not wanting, according to *The Lancet*, January 24, 1920, of a new attitude on the part of the public toward medical education, and the resulting changes in the methods of instructors of medical students constitute a notable event in the history of medical education. An important development of this kind is the new agreement between St. Mary's Hospital and the Paddington Board of Guardians, by which the clinical material of the Paddington infirmary will become available for teaching purposes and provide valuable material for investigation and instruction in every form and phase of chronic illness, especially in diseases of the respiratory tract and in chronic heart diseases.

In the selection of cases which has been made in the Hospitals of London, it has been possible for a medical student to go through his course only rarely seeing the treatment of such diseases as tuberculosis of the spine and hip, chronic septic osteomyelitis, the palliative treatment of malignant disease, and some acute inflammatory and orthopedic conditions. Further cooperation between the hospital and infirmary should make it possible to fill a hitherto distinct hiatus in medical education by the provision of psychiatric clinics for incipient mental diseases.

Another beneficial result which is anticipated is that this wealth of clinical material will make possible a more intensive study of the beginning of disease. The gain to the public is not less marked as better facilities for study should mean better care for the sick.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M. OLMSTED, R. N., *Editor*

PREVENTION VERSUS REPAIR

HEALTH posters have a value in the work of prevention. In the Greater Community Hospital at Creston, Ia., a nice large room is reserved for the lecture and class work of the nurses in training. Unlike any nurses' classroom that has ever came to the attention of the editor, it contains, not only the ever present skeleton whose minutest bone is a matter of vital importance, but, on its walls, many charts and illustrations which give the pupil nurses a keen sense of the great wastage of life permitted to go on daily and a deep appreciation of the value of lectures on the causes and transmission of diseases.

These illuminating graphs and charts—simple, direct, and often accusing—are bearing fruit in the minds of the nurses in training in that hospital school. While we were copying some of the words under the graphs and pictures, a bright, earnest young woman approcahed and said: "Isn't it too terrible to think that so many of our patients need never be sick if everyone only did his part to prevent the spread of disease! When I graduate, I shall know how to care for those unfortunate victims of public carelessness when necessary, but I want, so much, to *help keep people well.* I can hardly wait until I get through my training. I want to go out and talk from every house top and tell everyone that for three years I have nursed and tended the ill and dying who were victims of their carelessness and indifference. Isn't training to be a nurse wonderful? You get such a complete knowledge of results. After nursing a very ill typhoid fever case or a tuberculosis patient, you really feel that everything you can do is little enough to prevent other people getting sick. Nursing to cure is the stimulus to prevention."

Is not this a wonderful spirit for a young pupil nurse? It is quite different from that of the young graduate who saunters forth from her training school with little thought other than certainty of a job, convenient to home or with short hours, be it a private duty case, an institutional or a public health position?

Shorn of their color and illustrations, there follow some of the charts that tend to make these young nurses think:

Preventive Medicine as a Patriotic Service

At the same rate that prevailed during the Civil War, our loss during the United States' participation in the World War would have been:

From malaria	13,915;	it was	13
From scarlet fever and diphtheria	1,299;	it was	267
From dysentery	63,898;	it was	42
From smallpox	9,536;	it was	5
From tuberculosis	9,574;	it was	1,220
From typhoid fever	51,113;	it was	213
From other diseases (men only) exclusive of pneumonia	34,881;	it was	3,768
From pneumonia	38,963;	it was	41,747
Total from all causes	223,179		47,275
Total saved	175,904		

The Greater Community Hospital

This Institution is to be the home of a service in the form of organized and sustained activities directed to the prevention of preventable disease, the correction of correctible defects, and the restoration, repair, and relief of those disabled by troubles we fail to prevent—a service dedicated to the conservation of men and women, to the protection of children, and to the promotion of their normal development.

A few facts concerning ourselves in the Greater Community are shown in the map:

As compared to averages for the state of Iowa at large, we have: more money per capita; more churches; a higher percentage of average daily absences of children enrolled and a higher ratio of insane; we expend more for the maintenance of graveyards than we do for playgrounds; and our expenditure for health departments is less than our income from the dog tax.

During the year 1915, the people of Iowa paid for state care of physical, mental and moral defectives, $4,540,571.00, which approximates two

dollars per capita for the total population of the state.

Through modern social and scientific service, at least 50 per cent of these defects could be prevented.

The economic loss from disabilities and from the discounting of human efficiency resulting from preventable disease is greater than that from fire, flood, and tempest, added to the average animal loss, hog cholera. This, too, is exclusive of the economic losses from untimely deaths.

Compulsory Education

At the age of *five* he *may* go to school.

At the age of *six* he *must*—that's all—the only specification is age.

BUT—About what should be his weight?

The kindergarten child should acquire during the September to Christmas term about one pound. There is something wrong with a child that makes no gain in weight during a school term.

If it pays to have scales in the barn yards, why not in the school houses?

Isn't there something wrong with us if the revelations of the selected draft fail to inspire reformation in our poverty of provision for conserving the health of school children?

What better service could any Red Cross organization render than that of providing Public Health Nursing Service for our respective communities?

The casue of these unfortunate features is not lack of Christian spirit nor unwillingness to spend money; neither is it lack of organizations for welfare promotion.

It is the lack of a definite plan by which our forces may be concertedly directed to the conservation of vital interests common to all.

The Greater ommunity plan offers a way.

About 60,000 school children died in the United States last year; approximately 37,000 of them from preventable disease. Southwest Iowa, no doubt, furnished its quota.

But Iowa, as a state, is thoroughly aroused as shown by the rapid growth of the Public Health nursing service. Upwards of one hundred and fifty public health nurses, including school nurses, are now at work in Iowa. How many in your county?

Is it wise business management to expend public funds in purchase of equipment for protection of property against fire, and still more perfectly good money to maintain service, capable and ever-ready people who know how to fight fire, prevent its spreading to innocent bystanding buildings; and the night patrolman and the inspector of the buildings under construction? Of course; it's good business.

Here in Creston, we have $22,000 worth of property and apparatus that are dedicated to the protection of our houses and our goods against fire. Maintenance of the service costs us annually, including hydrant rentals, about $10,000. Notice this fact: The service is obtainable by any person who may need it. The fire companies work no less faithfully to save the home of a poor man than for rescue of the rich man's mansion—all of which is good business and right in principle.

Another notable public service that involves expenditure of public money is our Health Department. The value of our equipment (municipal devoted to defending our lives and health against preventable disease since the pest house burned) is . . . well, so far as we can learn, it is expressed in the supply of our quarantine cards painted in large type, warning persons to keep out, a most beneficent provision, is it not? For services of health officer and incidentals we paid, last year, $369. Heavy, isn't it?

In this connection it is interesting to note a fact that in great measure mitigates the seeming prodigality of expenditure for protection of mere people against disease. The municipal cemetery paid a profit of $309. So, after all, we are only $60 on the account with human life and health conservation.

As beneficiaries of the past, our only escape from going on record as self-convicted parasites is to make ourselves benefactors to the future, or at least to try earnestly and persistently to make the community a better place to live in because of our having lived there.

Health Texts for Every Man

During the past 20 years, the annual death per 100,000 population has been reduced for:

Typhoid fever from	36 to 15
Diphtheria from	43 to 17
Tuberculosis from	202 to 147
Enteritis under two years	108 to 70

but the death rate from diseases incident to childbirth continues about the same.

Most of the so-called offenses against society are society's own chickens come home to roost.

The principal business of each generation of men is the production and preparation of the next.

Not in disparagement of research, but to urge attention to an urgently important matter, it would be a good boost to the cause of medicine if we could swap part of our scientific achievements for social equipment through which our science could get service—timely service—to those who need it.

PUBLIC HEALTH NURSING IN ITALY

By EDNA L. FOLEY, Superintendent, Chicago Visiting Nurse Association, Chicago, Ill.

WHEN the Tuberculosis Commission of the American Red Cross began its survey in Italy in 1918, it found sanatoriums, dispensaries, open air schools, and seaside heliotherapy stations; but no home visiting, no well established connection between the institution and the patient's family. Throughout northern and central Italy were various kinds of very well-built and, in many instances, well managed institutions—general and special hospitals; well baby conferences; schools for the blind, the deaf, and the crippled; with sometimes a little volunteer home visiting but no follow-up work of special cases of convalescents, and no home demonstration of food preparation for babies and small children. In fact, at an International Mutilati Congress held in Rome in October, 1919, at which the very excellent exhibits sent by France, England, and Italy made the entire absence of anything from America only more conspicuous, the physicians interested in the problems of the tuberculous soldiers discussed at length ways and means of keeping him happy and contented "away from his family." The visiting tuberculosis nurse has done a great deal to help us solve this problem in the United States but in Italy, before our courses, she was an unknown factor in the tuberculosis field.

Commission Organizes Work

The Commission arrived in Italy just before the influenza epidemic and physicians and nurses were loaned to small districts where nearly all the available physicians were in service and where nursing was unknown. Intelligent people were panic stricken, and the ignorant contadini terrified. In several towns, emergency hospitals were established and in others house to house visiting was done. Nursing, when whole families were stricken in their one-room homes, was almost impossible; for such homes were made to sleep in, the mattresses and pillows being stacked up in the day time. But this emergency visiting revealed the need of organized home work. Therefore the Commission decided to establish a training center for Italian public health nurses. This eventually took the form of four-month courses in Rome, Genoa, and Florence, scholarships enabling towns where anti-tuberculosis leagues were at work to send their candidates to the nearest course.

American Red Cross nurses were loaned to

The old Hospital del Ceppo in Pistoia, a small city one mile from Florence. The hospital was erected in the fourteenth century, and has served continuously since.

Vegetable women in a busy thoroughfare in Rome. Two men could hardly carry her load between them in this country, out no other means of cartage was provided.

A section of the facade of the old Foundling's Hospital in Florence, famous for the Della Robia babies. The blocked up space at the extreme end was originally the "Window of the Innocents" on which the foundlings were placed when their mothers wished to desert them. The hospital cares for other babies only when no foundling child requires bed space.

A group of villagers at Campo, Calabria, in southern Italy. The shacks are those erected immediately after the great earthquake of 1918 when Messina and Regio and other near-by towns in Sicily and Calabria were almost totally destroyed. Now the law permits only two-story buidings to be erected in this earthquake region.

New City Hall or Municipale in Campo, Calabria. The group of villagers is coming from the city store, where they may buy bread, macaroni, and corn meal on war tickets or tessare.

tuberculosis clinics and infant welfare conferences in three cities—Palermo, the hill-top town of Sezze in the Campagna, and the naval base of Spezzia. The field work that they established served as a practice district for the students.

As Italy has but three training schools and probably less than two hundred graduate nurses all told, Italian Red Cross nurses having had not less than two years of war work were encouraged to enroll as students. Each course was directed by a committee of prominent Italians. In Rome the president of the Committee of the Scuola Infermieri Visitatrice was also the chairman of the Section of Hygiene of the National Council of Italian Women, the Marchese Mariana Denti, a volunteer who had served with conspicuous fidelity throughout the entire war. In Genoa the school was established under the auspices of the provincial Lega Antitubercolare which gave the use of a well established clinic and its fine lecture room. In Florence the Committee was composed of prominent volunteers who were very much interested in securing better nursing care for their sick poor. In Rome and Florence the Committees were composed entirely of women, but the Genoa Committee was made up of men and women, the president being Professor Trambusti of the faculty of the University of Genoa.

Curriculum of Courses

Each course registered about fourteen students and the curriculum, as first outlined, copied in many details those of similar courses in America but when the schedules were given physicians for their approval, we found that some subjects which they considered essential and which we had taken for granted, had to be inserted. Consequently, lectures in anatomy and pathology took their turn with those in home demonstrations on infant feeding and investigating and reporting the need for relief to the proper local agencies. School nursing lectures were shared by professors of pediatrics and school inspectors because we found that the students had had nothing but adult work, and that only with soldiers. But in spite of the fact that the schedule seemed rather a mixture of training school and post-graduate material, the interest of the students, the sympathetic attitude of the physicians, and the more than average intelligence of the

This very modern laundry for a country district consists of two large tanks of cold water. The entire supply of clothes for many families is done simultaneously. The women like to gather at the wash place for a social afternoon or morning.

Italian girls made these seemingly ill adjusted studies fit very nicely into one another.

As the work was planned, the students spent every morning in the field making visits with the American nurses or visiting under their supervision. Afternoons were spent in the lecture room where daily conferences were held with the director of the course. A lecture was given by a physician and usually a second lecture was given by an American Red Cross nurse.

From the first the Americans interested in the course realized that their work in Italy was but temporary and that this work must be done by the Italians themselves if it were to be permanent. Therefore, nothing was done before a strong committee was established in each city and even then the Americans served simply in an advisory capacity. The responsibility for planning all the details of the courses but the lecture schedule itself was being left to the Committee. They found the rooms and financed securing them, furnished them, advertised the course, interviewed the candidates, and selected the students. As the first courses in Rome and Genoa drew near an end, the committees arranged with the physicians for the examinations, for the certificates, and for the assignment of the students to positions desiring them.

A Mutually Helpful Program

The courses went unusually well considering that they were an absolutely new venture and the American physicians and nurses who took part in establishing them learned a great deal about our Italian fellow-citizens. Most of the Americans spoke a little Italian and understood still more. Nevertheless, the difficulties of undertaking work of lasting educational value in a country where it was but imperfectly understood by very intelligent people were intensified on every side by this big handicap of not speaking a common language. To be sure, all educated Italians speak French and many of them speak English almost equally well; but educated Americans do not speak French and only one or two of the students in each group had any English, although probably 98 per cent of them spoke French easily. Telling everything through an interpreter is difficult enough at home in our own districts, but one has to lecture through an interpreter on a subject whose phraseology is of such recent creation in English that equivalent words are entirely lacking in Italian before one can appreciate the chief difficulty with which we met. It was easy enough to find a person who spoke and understood English fairly well but to pass one's ideas over to this interpreter so that she really gave the correct thought rather than her interpretation of your thought to the class, required a very extensive English vocabulary on the part of the American Red Cross instructor and an equally extensive Italian vocabulary on the part of her interpreter.

The more one uses interpreters, the more one appreciates that only the rare individual makes a successful go-between. For instance, a very busy, interested and earnest superintendent of schools, whose teachers were doing a piece of work as significant in its sociological as in its educational aspect, was asked by an interpreter who spoke very good French if he would lecture to our students. He seemed a little bit surprised but said that he would. A few days later we dis-

An Italian child in this group of children is walking off with a bundle on her head which is carried as unconcernedly as if it were a new spring hat.

covered that the interpreter had asked him if he would collect all of his school teachers and let the American director of the first course lecture to them. How this Italian so misconstrued perfectly good French, which we thought he spoke easily, is a mystery still unsolved; but that one incident made us go very slowly whenever we were making the simplest request through a new interpreter.

Needs of Special Communities

At the expiration of the course in Genoa, five students were put into the public schools under the supervision of Professor Ragazzi, who holds a position in the Department of Hygiene analagous to that of our chief medical school inspector, and others were assigned to various dispensaries and conferences asking for them. We

It is not an uncommon sight in Italy to see flocks of goats being driven through the streets. The housewife hears the bells in the distance, takes her bottle to the door, and the goatherd stops the flock and then and there milks into the bottle the desired amount.

found that there was a very distinct need for tuberculosis home work, for work with well babies and with little children. In and about Rome we found a great deal of trachoma and malaria but, to our very great amazement, we discovered almost no illness in the homes except in the more isolated districts where there were no hospital facilities. In Palermo there are not nearly enough beds to meet the needs of the population; this was the only city of any size where we found sick people in bed at home, or ill enough to have been in bed.

In the small country towns we occasionally found an advanced case of tuberculosis or a confinement case suffering with complications, but in the larger cities where there are many civil hospitals, whose service is free to the poor, we did not find a single bedridden case. We were amazed at the number of dressings that reported daily to dispensaries, even when the patients made the trip with a great deal of difficulty. Italian physicians and volunteer workers assured us that they felt there must be a very great need for visiting nursing to the sick but our investigation, which extended over eight or nine months, did not bear out their statements. We did find many people who seemed to us ill enough to have been in bed had their homes been adapted to this sort of treatment, and we were told that the long waiting list which practically every hospital had would be considerably reduced if patients were dismissed earlier, but that the lack of any kind of home service delayed the discharge of convalescents.

However true this may be, we found practically no illness in the homes nor could we understand why the average Italian in America has such a deep-seated prejudice against hospitals when in his own country he seems to go to them readily enough. Undoubtedly this is because our hospitals use English only and are reasonably well ventilated. The Italian lives so constantly in the fresh air during the day that he rather strenuously objects to fresh air at night, and perhaps our hospitals have too much of it.

The Red Cross was able to assist the local committees to complete the first courses in Rome and Genoa and to see second courses in both these cities and a first course in Florence well on their way before the nurses were all withdrawn January 1. Through friends of Dr. William Charles White, the director of the Commission, scholarships have been secured on which several Italian students are to come to America for further training and study. It was gratifying to the Red Cross workers who had the privilege of sharing in these courses, to feel that the comparatively young United States of America has something to give a country whose civilization is as old and as well established as is that of Italy, and the workers very much hope that these modest beginnings may help to secure infinitely better care for the many patients in Italy whose needs, up to the present, have frequently gone unrecognized.

THE EUROPEAN HEALTH SITUATION

The recent service of Surgeon General Cumming on several international boards gives especial significance to his expressed opinion that typhus in Asiatic countries is still unchecked and only the strictest measures of control will serve to prevent its invasion on a wide scale in Europe. Living conditions should prevent the menace of typhus in America. He expressed the belief that the health work of all nations should be strengthened and coordinated to improve the reporting of diseases and the maintenance of quarantine between nations.

A meeting is to be held in London on April 12 to which officials and representatives of the health departments of various nations have been invited, at which time it is believed a permanent organization will be formed. The United States will send a representative to this conference, Dr. Cumming said.

THE CHICAGO INFANT WALFARE SOCIETY

By SARAH B. PLACE, Superintendent, Chicago, Ill.

Annual report of the Superintendent of the Chicago Infant Welfare Society, February, 1920.

This Society has for its objective, the reduction of the infant death rate and the improvement of the health of the coming generation by keeping the baby well both before its birth by caring for its mother, and after its birth by teaching the mother how to feed and care for the infant. During this past year what progress have we made in approaching our goal?

Child Welfare mother and baby.

Progress this year has been along very definite lines. We have reduced again our infant mortality rate, and we have developed new work with the child to six years of age. To those of us who are very near the work and to whom its development is very dear the demonstration is made time after time that our greater value to this community lies in emphasizing the vital need of giving mothers early care and of keeping the child well after its birth.

Dr. Helmholz will report on how we have succeeded with the medical side of the problem. The entire story is not told in terms of mortality rates and well babies, however. Not only are we saving twenty-three more babies per thousand than in the first year of our work, but our influence is being felt in the home in a great variety of ways through safeguarding the welfare and comfort of the family group. Some time ago a mother who had much to learn regarding the feeding care of her baby, and who had repeatedly turned to our station for help, came early one morning with a bundle of heavy material asking the nurse to cut out a coat for the child. Fortunately for us, this nurse was particularly skillful along this line, and a few minutes later a very light hearted mother betook herself home to complete the garment.

The Work Is Educational

Ours is an educational piece of work, and we do teach mothers how to care for their own. This must not be construed to mean that nurses are content to reiterate and emphasize the doctor's instructions and watch the mother carry them out. It does mean that the nurse follows the instructions of the doctor and does such other things about the home as are advisable. It is a message of deeds as well as words which we carry into the homes.

Our prenatal work has been possible through the splendid cooperation we have had with Rush Medical College, and the Out-Patient Department of the Presbyterian Hospital. We have twice as many mothers coming to the Milton prenatal clinic this year as last.

It is no longer necessary to argue the need of such work. It remains now but to carry out plans making it possible to swing the very big program ahead of us, and we hope 1920 will see us well launched on our program for pre-natal and post-natal care for every child in our twenty-three stations.

Early in February, we will add a complete station—that is, a station with a pre-natal clinic, our regular mothers' conferences, and a nutrition clinic—which will be supported through the interest of the Child Welfare Committee of the Woman's City Club and will be located in territory adjacent to a long established district northwest.

A plan for reaching more district babies as soon after birth as possible has been in operation several years. Through the activities of the birth registration nurse follow up calls are made in our district homes in which we have a birth registration report through the city hall.

Where is my nurse?

Every year we are helping an increasingly large number of mothers to solve the problems of early infancy. During the month of December there were registered in the city hall 1,037 births which were within the boundaries of some one of our twenty-three districts.

When births are not registered, we often encounter dire results. A striking example came to our attention within the past ten days when a district grandmother came to ask the nurse to come and see the eyes of a new born infant. Going immediately, the nurse found a condition which necessitated prompt hospital care for the child. The midwife had not reported the birth, had not used the prophylactic treatment provided gratis by the State Health Department, and had not reported to the local au-

Who started this bathing business, anyway?

thorities the condition of the child's eyes—all of which subjects her only to prosecution by the State Board of Health—but the child to a life of impaired vision.

Extent of the Service

This year we have cared for 257 babies through the Home and Aid Society, making 2,352 calls. With the establishment of the work with the child to six years of age, we hope the time will soon come when the Home and Aid Society can have more than one nurse do this important work.

In inaugurating the work with the child to six years, it has seemed most necessary to add a staff of dietitians who are doing for the child of pre-school age what the doctor has been doing for the baby under two, directing the feeding. Splendidly enthusiastic work has been done by these women and we are confident that the recent decision of the county agent to supply milk to children under four years instead of the previous two year age limit is due, in a great measure, to the efforts of our dietitians. The county agent has in a number of instances changed county rations to more nearly suit the needs of an individual family when his attention has been called to it by our dietitians. We very much appreciate this splendid cooperation, as it does very materially help us in solving an otherwise hopeless problem.

Our stations have had this year a total conference attendance of 18,525. During the year, the nurses have made 80,264 calls, having cared for 8,793 babies. Not only is the educational work carried on in our own community, but the fact that we have sent ten of our nurses into other public health fields, indicates that we have contributed materially to the national campaign for more adequate child welfare work.

The Chicago School of Civics and Philanthropy gives a course throughout the year in public health nursing. During 1919, Infant Welfare gave a half day's intensive instruction and additional days of field work to 135 student nurses in connection with this school.

Such work is possible only through the splendid cooperation of all interested, cooperation being interpreted to mean the working together for one purpose and in its broadest application covers all interchanges of courtesies and assistance between workers. The work this Society does could not be accomplished without the conscientious effort put forth by doctors and nurses, whose work in turn would be quite fruitless were it not for the thousands of mothers who are eager for more knowledge, more light; and the entire story might be left untold were it not for our some seven thousand friends whose share in the cooperation is the generous giving of themselves.

THE SCARCITY OF NURSES

A petition has been made to the Massachusetts State Board of Health which proposes to relieve the scarcity of nurses by the creation of a class of nurses to have the title of "licensed attendant," this right to be conferred on persons of at least eighteen years of age, and nine months' training as attendants under proper professional conditions.

Dr. Walter P. Bowers, secretary of the State Board of Registration of Nurses, expressed himself in the discussion of this measure as in favor of grading nurses into Classes A, B, and C. The bill is supported by Dr. M. E Champion of the State Board of Health, and by the Massachusetts State Nurses Association.

There are about nine thousand nurses in Massachusetts and the requirements of training need to be modified so as to shorten the period of preparation for the $18 to $25 a week class. It is believed the petition presented would draw nurses recruits from the ranks of other professions.

The measure is opposed by Dr. E. H. Cohoon and Dr. George O. Clark on the ground that it is bad legislation and would reduce the facilities of the small hospitals to get the class of nurses they want.

MENTAL RETARDATION AMONG CHILDREN

In some observations on mental defectiveness and mental retardation among children published in *Public Health Reports* of April, 1919, Walter S. Treadman makes a plea for the recognition of borderline cases. Another method is one of gradations, and serious mistakes are made by classifying as feeble-minded, children whose mental development has merely been retarded. Feeble-minded children lack equilibrium and proper balance and are usually presumably insane in showing either intellectual or moral degradation, or a combination of the two.

The grading of children by the Binet-Simon scale gives, for educational purposes, a comparatively quick insight into the mental capacity of children; but as applied to adolescent cases, the mental equipment being more complex, is less accurately measured by an arbitrary schedule.

In attempting to decide between retarded mental development and feeble-mindedness, the question of neuropathic predisposition is sometimes given undue importance. In many cases faulty habits of training are

responsible. Environment also plays a part. Limited educational opportunities also play a part in the failure to score a high mark or credit by formal psychological tests.

Inquiry into the total of mental makeup of the child should be made and considerable training methods adopted to develop the desirable traits and restrain the undesirable ones. In these borderline cases, mental hygiene takes prominent rank in the role of preventive medicine.

CARE FOR MALNOURISHED CHILDREN

The problem of the malnourished child is beginning to receive the attention it deserves, and a solution is being sought by the numerous agencies interested in health

An occasion for congratulation. This youngster knows he is moving up the line of proper weight for height. (International Film Service.)

work. Dr. William R. P. Emerson and his assistant, Miss Mabel Skilton, who have made remarkable progress in this line in Boston, have been called to other cities to demonstrate their methods and line up various organizations for the spreading of information on the subject.

In one section in Boston out of 500 children examined there were only fifty-one whose weight was normal in relation to height; only thirty-three were over-weight, and only 100 showed no defects. Practically 40 per cent of the defectives had rickets. The other more serious defects were bad teeth, enlarged tonsils, pediculosis, and coryza.

Making a record of a malnutrition case at the Dante School, Boston, the examination being made by Miss Mabel Skilton. (International Film Service.)

Out of 416 children examined who were underweight, 235 were foreigners, the largest percentage of these being Irish. The next in order were Russian, Italian, and English.

The work as carried on in Boston consists first in home visits by public health nurses who make the necessary explanations in order to get the children into the classes, and also get facts about the homes which are helpful in the after treatment. Once the children are enrolled in the classes, competition is of great assistance in securing the necessary cooperation.

The children from the clinics are referred to the various agencies already existing which do work along this line, and these agencies report to the Child Welfare Committee once each month, so that the Committee is able to keep a record of each child until such time as his condition warrants discontinuance.

Examinations made of children of pre-school age indicate that there is great need of health supervision for children under six years of age.

FREE CLINICS FOR RURAL DISTRICTS

The Interchurch World Movement has adopted as a part of its health program the establishment of free clinics in rural communities. These clinics are to be held in remote sections by prominent physicians and surgeons from medical and hospital centers. They are to include treatment as well as diagnosis.

The organization sets the problem of sickness thus: The position of the sick, especially if they be also poor, is desperate enough in cities. New York City has forty-five non-municipal hospitals; they care for one million patients annually, but are always crowded and compelled to turn away great numbers of applicants because of lack of room. Five thousand sick persons are said to be denied admission every day to hospitals under the auspices of Protestant churches in the United States because of inadequate accommodations. The Interchurch program aims to meet and supply this great need and to meet also the country's need.

Knowledge of disease is lacking, and the facilities for its treatment not at hand. The plan for the rural clinics provides that they be held two or three times each year in the selected communities and that they last one week. Persons with organic diseases and congenital troubles will be encouraged to attend, and especial effort will be made to bring children to these clinics in the hope of stamping out inherited disease before it has had opportunity to develop, or to be transmitted. Free dispensaries are also provided for in the plan.

MATERNITY CENTERS IN NEW YORK

Thirteen foreign countries have a lower average rate of infant mortality than the United States, according to a report of the work of the maternity centers in New York. The Maternity Center Association, New York, was founded less than two years ago. These centers are intended to be a clearing house for maternity work. The need of extending the work is shown by the fact that there are still 75,000 expectant mothers in New York without medical or nursing oversight.

The estimated result of the work in maternity centers has been a reduction of 75 per cent in the death of the mothers and 40 per cent in the deaths of babies in premature deaths.

DEADLY POISON IN CANNED GOODS

The death of several persons from eating ripe olives has caused physicians, health officers, and bacteriologists to give close attention to the prevention of such poisoning. Dr. Howard S. Breed, bacteriologist, in a recent statement declared regarding botulism:

"Botulism is the name of the poisoning caused by the growth of a comparatively rare bacterium, Bacillus botulinus. It was originally described in 1899 by von Ermengen as found in spoiled ham. This outbreak in Belgium and other early cases were associated with spoiled meats. Recent American cases have come from spoiled canned goods. Up to January 10, 1920, there were forty recognized outbreaks in the United States, which affected 150 persons, with ninety-three deaths.

"These outbreaks were associated with spoiled canned string beans, asparagus, beans and ripe olives, all of which were eaten uncooked. Most of the trouble has come from home canned goods until during the past six months, when there have occurred outbreaks from eating ripe olives at Detroit, New York, Canton, O., and Memphis. This has caused the Bureau of Chemistry and the commercial canners to withdraw so far as humanly possible all suspicious goods.

"In all of the ripe olive cases the persons eating them admitted that they knew the olives were spoiled. Those who ate them at Canton said they smelled like limberger, bit the tongue, were soft, not fit to eat, and stuck to the tongue.

"The deadliness of the poison produced by the bacterium in decomposing the olives is shown by the fact that one person died who ate only half an olive. Death is caused by the poison bacteria, as Bacillus botulinus in the olives, not by a disease caused to grow in the human body.

"Danger may be avoided by discarding all canned goods showing any evidence of spoiling. All danger is avoided by not eating any canned vegetables until after they are cooked. Cooking destroys the poison. Prudent persons will also avoid using home canned vegetables for salads, even though they appear good, as Bacillus botulinus has been found in some canned goods where there was no evidence of spoilage. Commercial canned vegetables are safer than home canned as they are sterilized at higher temperatures. Unspoiled canned goods are always safe to use if they are cooked after opening."

NATIONAL PHYSICAL EDUCATION

An interesting discussion of the position of the medical profession in relation to national physical education is contributed by R. Digby Bell, M.R.C.S., L.R.C.P. Lond., in *The Lancet*, January 31, 1920. Dr. Bell states that the study of physical education has concerned him since 1906 and that his connection since that date has led him to regard physical recreation as a necessity to counteract the possible onset of a depression due to the incessant nervous strain and ghastly monotony of some forms of the service. He submits a schematic arrangement of the different phases of physical education which he divides into three main headings: (1) activity developed by physical training, (2) energy developed by recreational training, and (3) character developed by morale training.

Anatomy and physiology come prominently under preventive measures. Constructive measures involve the application of bodily exercises to the young to insure as perfect a body as it is possible to require. Continuity of physical education is provided by a series of activity measures simple in character requiring two minutes to do which are compiled to provide full and free movement of the body in an interesting and attractive form. He speaks of the assistance of corrective physical training in the department of orthopedics. Research in corrective orthopedic work is provided for in his scheme. Unscientific exercises can be defective, both anatomically and physiologically.

He regards it as utterly scandalous that the British should be ranked as a C3 race as regards physical fitness and considers athletic competitive sports in which all the people participate the only possible correction. All efforts have failed to provide a national program and he calls upon the medical profession to awaken the country to the necessity of physical education as a measure of preventive medicine.

CONNECTICUT TUBERCULOSIS COMMISSION REPORT

Marked progress is shown in the tuberculosis campaign in Connecticut during period from October 1, 1916, to Sept. 30, 1918, covered by their last report. Despite the paralyzing effects of war and pestilence, there has been a sympathetic interest on the part of the public scarcely duplicated in any other part of the country. The special need is urged of better supervision by the state for its children crippled with bone and glandular tuberculosis. The Commission urges the concentration of effort where there is hope of cure, and believes that general hospitals of the state should be compelled to provide wards for the care of emergency and dying cases of tuberculosis.

An interesting feature in the study of tuberculosis is that it kills more city men and more country children. It is pointed out, however, that the controlling factor is density of population and that the average density of population in some "rural" towns is higher than the average density of population in many urban towns.

There is here as elsewhere a shortage of nurses, and the need of a thorough development of a tuberculosis dispensary system. The report points out the fact that the tuberculosis situation might be met by institutional care. The real hope of correction is in educational measures.

WAR'S EFFECT ON FRENCH CHILDREN

The effect of the war on the children of France is shown in a recent report submitted by the American Red Cross headquarters at Lille. The figures are furnished by the Municipal Bureau of Hygiene.

The city had a pre-war population of 200,000. The birth rate has shrunk from nearly 4,900 in 1913 to only 600 in the past year. The figures by years follow: 1913, 4,885 births; 1914, 4,540 births; 1915, 2,155 births; 1916, 640 births; 1917, 600 births; 1918, 600 births.

The death rates according to ages are not known, but since the armistice a survey has been made in all public and private schools with a view to obtaining appropriate food for all children whose development has been retarded, and to place all those who show signs of tuberculosis in the care of institutions and welfare organizations. Of 18,000 children in school at Lille at the time of the armistice, more than 6,000 had to be sent to hospitals or convalescent centers.

This survey indicated that 60 per cent of the school population showed signs of arrested development, while about 40 per cent gave evidence of ganglionary or pulmonary tuberculosis. In one typical school, out of 210 examined, only one was in normal health.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

THE PHYSICAL BASIS OF HEREDITY. By Thomas Hunt Morgan, professor of experimental zoölogy in Columbia University.[1]

This volume comprises an authoritative exposition of the mechanism of heredity by one who has done much to expand the basic principles of Mendel to their present status. Throughout, a close correlation is preserved between the analysis of actual breeding data on the one hand, and the cytological evidence for an adequate chromosomal mechanism on the other; this treatment constitutes the most novel and valuable feature of the work, and by it the pedagogy of genetics marks a distinct advance.

Those who have not followed the rapid progress of genetic facts and concepts will be struck by the amount of water that has gone through the mill since the "early," yet in reality comparatively recent, days of "Mendelism." The important principles of linkage, including sex-linkage, crossing-over, linear order of the genes, interference, and the limitation of the linkage groups are largely the result of prodigious labors by the author and his associates. As might be surmised, their analyses and inferences far outstrip the correlative cytological evidence, but, even so, recent chromosomal studies tend to confirm dramatically many of their conclusions and predictions. The bulk of evidence is drawn from data on the fly, Drosophila. This is to be expected, not only because the author's experience has been largely confined to this form, but also since the analysis is here quantitatively most complete.

One misses the customary setting of historical and evolutionary principles, as well as such topics as statistical methods, the relation of germ plasm and soma, human heredity and eugenics; these subjects, and a general treatment of genetics based largely on mammalian data, are to be found in a recent book of essentially similar scope by Professor Castle. These two American texts, which in many respects supplement each other, furnish the most satisfactory exposition of genetics existent.

As a text for undergraduate use Professor Morgan's book will not be found "easy reading"; this need not reflect on the lucidity of treatment, which shows a master's skill, but rather the difficulty is inherent in the subject matter; yet anyone who earnestly reads and ponders will be amply repaid.

THE AFTER-TREATMENT OF SURGICAL PATIENTS. By Willard Bartlett, A.M., M.D., F.A.C.S., and Collaborators.[2]

There is undoubtedly a definite demand for a good book on after-treatment. Bartlett and his collaborators attempt to fill this demand. In two volumes, the postoperative period, the sequelae, and complications which are apt to arise, are dealt with in detail. There are many interesting and practical points. The method, for example, by which the interest in a patient using the Blow-bottle during empyema is stimulated by attaching a manometer is ingenious and extremely useful. The work is well illustrated. The book, however, contains more operative technic than is essential. A book on after-treatment, moreover, should presuppose a broader knowledge of surgery and should lay more stress on the after-treatment *per se*, especially of the more common operations. Bartlett's work contains much that is good, much that might well be omitted, and lacks some things which might well be added.

MODERN SURGERY. General and Operative. By John Chalmer De Costa, M.D., LL.D., F.A.C.S., Samuel D. Gross, professor of surgery, Jefferson Medical College, Philadelphia; surgeon to the Jefferson Medical College Hospital, consulting surgeon to Philadelphia General Hospital, St. Joseph's Hospital, and Misercordia Hospital, Philadelphia, etc.[3]

In one volume De Costa has condensed the essentials of surgery. His book contains the fundamental principles and a surprising number of details. There is an urgent need for just such a book. In this day when volumes are being written about a small group of organs or some single viscus, it is difficult often for the surgeon himself to "read up" a case. For the general practitioner or the student it is often almost impossible. They are apt to feel like the man in the old saying who cound not see the forest because of the many trees. De Costa's Surgery continues to be, as in the past, a good reliable guide through this intricate surgical forest. The last edition has been revised to keep abreast of the modern advances. The lessons the war has taught have been incorporated.

De Costa's "Modern Surgery" is an excellent book for the student and the teacher, for the surgeon and the internist, for the specialist, and for the general practitioner.

Would that the reviewer's task were always as pleasant and as profitable and his recommendation as easily and sincerely given.

SAFETY FUNDAMENTALS. Lectures by the Safety Institute of America (Maintaining the American Museum of Safety) on alternate Saturday mornings, from February 1 to June 7, 1919, for the benefit of factory inspectors employed by the City of New York, the states of New York and New Jersey, and insurance companies operating in and near New York City.[4]

The foreword of this book calls attention to the fact that inspection is more than fault finding and constructive criticism implies special training for inspectors. The book itself grew from material drawn from lectures given in free training courses in inspection.

In the opening chapter Dr. F. C. Smith, of the United

1. J. B. Lippincott Company, Philadelphia.
2. C. V. Mosby Company, St. Louis, 1920
3. W. B. Saunders Company, Philadelphia, 1919.
4. Safety Institute of America, New York, 1920.

States Public Health Service, treats of the "Body Which Gets Hurt" under such topics as the relation of health to labor stability, the relation of health to accident frequency, the increasing mortality at middle age, the importance of health breathing apparatus, the digestive tract, and oral hygiene. It constitutes a treatise which embodies a practical statement of normal function and how it may be maintained, and gives incidental warning of the deterioration of function from fatigue or lack of hygienic care.

Dr. Loyal A. Shoudy takes as his topic the care of the "human machine." What constitutes an injury is considered and the fundamental principles of first aid work expanded.

The safety fundamentals embodied in suitable clothing for workers are handled in chapters by R. M. Little and Adelaide Wood Guthrie. "Safe Heads and Good Eyes" and the "Cooperation Necessary to Eliminate Eye Accidents" are contributed by Walter G. King, of the Julius King Optical Co.

The subject of safety is well rounded out in succeeding discussion of the guarding and arrangement of machinery. Illumination, and special hazards incidental to certain natural forces. Safety organization and shop organization complete the series.

The book is a compendium of rational practice and a statement of the raison d'être of the safety movement for the use of managers, inspectors, or the men themselves. Its value is further increased by a full bibliography.

THE WOMAN OF FORTY. By Edith B. Lowry, M.D., author of "Herself," etc.[5]

Two facts are quite evident. Dr. Edith B. Lowry in numerous preceding contributions has proved her rare ability in elucidating to the lay reader many of the intricate aspects of the sex problem. There exists a definite need for this type of book. In this new volume the versatile author discusses the particular problems of the woman of forty. They pertain to health, appearance, clothes, occupation, happiness, and satisfaction; and they all are dealt with thoroughly correctly, intelligently, and even cleverly. This is a pleasant book to read—for the physician to get a clearer conception of the woman's point of view, and for the woman of forty to learn what a physician has to say about her.

FATIGUE STUDY. The Elimination of Humanity's Greatest Unnecessary Waste. A First Step in Motion Study. By Frank B. Gilbreth. Member of American Society of Mechanical Engineers; member Franklin Institute; past vice-president Society for the Promotion of Engineering and Education; honorary member Society for the Promotion of Occupational Therapy; and Lillian M. Gilbreth, Ph.D.[6]

The elimination of unnecessary fatigue involves a scientific study of both work and worker. It would entail the saving of $300,000,000 annually in producing and earning capacity and would incidentally remove other and unnecessary wastes.

The fatigue study presented by Mr. Butterworth was undertaken with a view (1) to determine accurately what fatigue results from doing various types of work; (2) to eliminate all unnecessary fatigue; (3) to reduce the necessary fatigue to the lowest amount possible; (4) to provide all possible means for overcoming fatigue; (5) and to put the facts obtained from the study into such form that every worker can use them for himself and get more out of life.

The investigation emphasizes the importance of the human element in work, classifies fatigue, outlines methods for the elimination of unnecessary fatigue and for the provision of rest periods, all of which results in improvements in relationships. It becomes evident that it is unintelligent to work at top speed part of the day and be in a state of exhaustion the rest of the time. The management is relieved from the imputation of trying to overwork the men. Better output ensues, and the spirit of cooperation grows.

Factors of fatigue elimination are discussed under conditions of illumination and ventilation, fire and safety protection. The improvement of general working conditions enters into the problem. Changes are made looking toward immediate betterment, adjustments from time to time developing into standard practices. The test of efficiency is in the improved health of the worker, in his prolonged activity, his posture, and in his conduct.

The modern trend in this movement is exemplified in the demonstration by Dr. Southard of the place of mental hygiene in industrial development and of Frederick S. Lee of the place of the physiologist as an investigator in this field. It is in the highest sense a constructive problem.

CHILD WELFARE IN KENTUCKY. An Inquiry by the National Child Labor Committee for the Kentucky Child Labor Association and the State Board of Health. Under the direction of Edward N. Clopper, Ph.D.[7]

Kentucky has recognized the importance of protecting its children from premature employment and has enacted a labor law with standards higher than those of neighboring states, says Mrs. Loraine T. Bush, in Child Welfare in Kentucky. But are the children deriving from it all the benefit the state intends they should?

Indifference and lack of knowledge of the child labor law on the part of employers in certain towns are amazing. Abuse in the matter of permits largely defeats the child labor law. Except in Louisville, documentary evidence of age is rarely filed. Physicians certificates do not record, as required by law, the height and weight of the children receiving work permits.

A serious omission in the interest of the children is the exemption under the Kentucky law of children employed in agriculture and domestic service, as 82 per cent of the child laborers are reported in agricultural pursuits. The only restriction to child labor in agriculture is in the compulsory school laws, and these are very contradictory and generally disregarded in rural communities.

Many instances are cited of children no older than eight or nine years who work side by side with adults and whose attendance at school is cut down to less than one-third, with the natural consequence of general retardation among farm children.

The recommendations urge the adoption in Kentucky of the standards of the Children's Bureau with Periodical medical examination of all working children under eighteen years of age. Provision for inspection and enforcement under labor laws is essential for effective work.

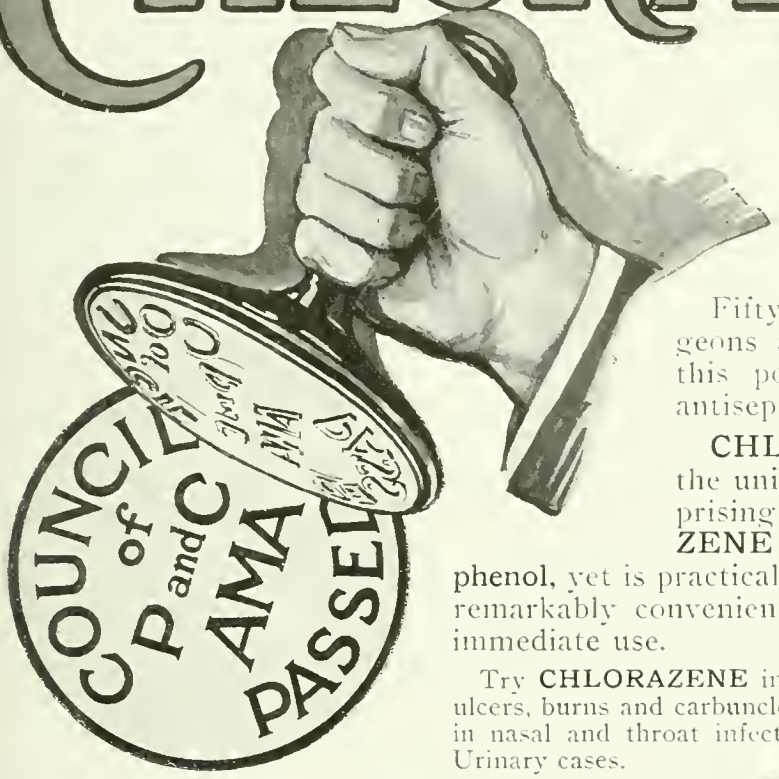
NURSING IN DISEASES OF CHILDREN. By Carl G. Leo-Wolf, M.D., chief of the clinic for sick babies and children for the health department of the City of Buffalo, N. Y.; instructor in pediatrics, University of Buffalo, Medical Department; author of "The Child in Health and Illness."[8]

After a careful reading of Dr. Leo-Wolf's little volume on nursing in diseases of children, one feels that it might

(Continued on page 22)

5. Forbes & Company, Chicago, 1919, $1.25.
6. The MacMillan Company, New York, 1919
7. Published by National Child Labor Committee, 105 E. 22nd St., New York City.
8. C. V. Mosby Company, St. Louis, 1918.

CHLORAZENE



A Real Antiseptic

Developed by Dr. Dakin as an Improvement over the hypochlorite solutions used by Carrel.

Fifty thousand physicians and surgeons are now using, with satisfaction, this popular, powerful, Council passed antiseptic.

CHLORAZENE is rapidly becoming the universal antiseptic. This is not surprising when you know that CHLORAZENE is fifty times more powerful than phenol, yet is practically non-toxic. It is safe, stable and remarkably convenient, in tablet and powder form, for immediate use.

Try CHLORAZENE in all pus infections, in surgery, wounds, ulcers, burns and carbuncles, in fact wherever there is pus. Use it in nasal and throat infections, as a douche and in your Genito Urinary cases.

CHLORAZENE is supplied in Tablets and Powder form. Also as CHLORAZENE SURGICAL CREAM, CHLORAZENE SURGICAL DUSTING POWDER, CHLORAZENE GAUZE and AROMATIC CHLORAZENE POWDER for oral and nasal use.

Send for interesting booklet on the Dakin Antiseptics, Chlorazene and Diehloramine-T

Urge your druggist to stock CHLORAZENE for your convenience in prescribing. In the meantime your orders will be filled directly from our home office or convenient branch points, as listed below.

THE ABBOTT LABORATORIES

Home Office and Laboratories' Dept. 27
CHICAGO

New York Seattle Toronto
San Francisco Los Angeles Bombay

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.

H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

58 East Washington Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

BOOKS OF THE MONTH

(Continued from page 340)

well become a very constant companion for the nurse. It would certainly be of distinct value to many physicians as well. The book is a simple, straightforward conversation between a man and his associate workers, who are also his friends; a man who, while he would demand the utmost obedience from his nurses, would be inclined always to give them full credit for the good results for which they have been responsible.

The next thing which strikes one is the very great care that the author has taken to explain the "little things" which are so seldom mentioned in the textbooks. These are the details which the nurse often fails to have at her fingers' ends but which she often hesitates to ask of the physician because he sometimes scoffs more or less at the things which she wishes to discuss as important. It is the big man who recognizes the value of the so-called nagging details and, also, that especially with women, both nurses and mothers, there is often a real ability to note detail of all kinds. Many training schools cannot give the nurse sufficient individual training to prepare her for all the exigencies of private nursing, and too often she blunders because no one has impressed the importance of simple things upon her. This Dr. Leo-Wolf does to a very noticeable degree, and his frequent admonition to the nurse "to put yourself in the patient's position" is certainly very pertinent. If all doctors and nurses did that more frequently, how different would be the history of the patient's experience.

The first two chapters of the book, the introduction and that headed "Physiology and General Considerations," give a good working basis, but with no superfluities. The third chapter, that on clothing, is very different from the matter before and after, and is the poorest one in the book. It is too short, too one-sided in opinion, and would not be practical generally, because it advocates unqualifiedly for the layette a number of things which many good pediatrists do not use. The chapter on infant feeding is a joy because it sets forth a positive plan, at the same time warning the nurse not to feed babies herself unless absolutely necessary, but still places in her hands a rational procedure in case she should be left, in an emergency, alone. The chapter on the examination of children is full of practical hints for both doctor and nurse and, again, there is much of practical value in the discussion of the nursing of sick children and infections.

Of course, the nurse is always the victim of the fact that no two doctors take care of their children in at all the same way, and one would naturally differ on occasion with Dr. Leo-Wolf; but there are very few textbooks where there is expressed as fair an opinion of the other man's point of view. Furthermore, the book is a relief because it does not have the mixture of physiology and anatomy, nursing and *materia medica* that one finds jumbled together in so many of the nursing textbooks.

A TEXTBOOK OF PHYSIOLOGICAL CHEMISTRY. By Olof Hammarsten, emeritus professor of medical and physiological chemistry in the University of Upsala; with the collaboration of S. G. Hedin, professor of medical and physiological chemistry in the University of Upsala. Authorized translation from the author's enlarged and revised eighth German edition by John A. Mandel, Sc.D., professor of chemistry in the New York University and Bellevue Hospital Medical College.[3]

Hammarsten's "*Physiological Chemistry*" remains to this day the best and most concise encyclopedia on the

(Continued on page 24)

3. John Wiley & Sons, Inc., New York, $4.

Measuring cap which double-seals the cork.

SOFOS

SOFOS is a product of the research laboratories of the General Chemical Company—one of the world's leading scientific organizations—a strictly American institution.

The Reason for "SOFOS"

—A New Preparation

The reason why sodium phosphate is not used more extensively lies not in its inability to exert the physiological action ascribed to it, but the failure to employ the ideal and therefore most active form.

The "reason why" of sodium phosphate success will be found in

SOFOS

Because SOFOS, a preparation of monosodium phosphate and sodium bicarbonate, has the same phosphate value as 1¾ times U. S. P. sodii phosphate.

Because SOFOS contains no citric or tartaric acid and after effervescence in water yields di-sodium phosphate *only*.

Because SOFOS is efficiently laxative or purgative according to dosage, without griping or "nagging."

Because SOFOS is pleasant and agreeable to the taste, adapted for children, old people, debilitated or delicate persons.

Because SOFOS is intended for professional use, and will be ethically introduced to the medical profession.

Because a test of the performance of SOFOS will fulfill and justify the promise of SOFOS.

SOFOS has been accepted by the Council on Pharmacy and Chemistry of the A. M. A. for inclusion in New and Non-official Remedies.

Ask your pharmacist for SOFOS. If he hasn't any, notify us.

Literature on request to

GENERAL CHEMICAL CO.
SPECIALTIES DEPARTMENT
NEW YORK

The Scientific Principle That Makes the New York Study Chair Unique Is

The correspondent adjustments of the seat, the lumbar support, and the desk top, making it conveniently possible

TO FIT EACH CHAIR AND DESK TO THE INDIVIDUAL OCCUPANT ANATOMICALLY RIGHT

insuring good posture
in a sitting position

Earl Thompson
Sales Agent
New York City, N. Y.
70 Fifth Avenue Cor. 13th Street

Free Literature on Request

BOOKS OF THE MONTH

(Continued from page 22)

subject. When one is in need of a comprehensive review of any subject in physiological chemistry, he can find what he wants in a few minutes in Hammarsten. Not only does one find good subject matter, but also excellent reference on the subject.

With all this, Hammarsten is not a textbook, but rather a reference book. Although some of the best physiological chemists in this country and abroad were brought up on Hammersten, the book does not appeal to the average student, for the average student does not want to read short sentences containing dry statements, without any comment on the part of the author—something which is characteristic of Hammarsten. If one would dare suggest an improvement upon an old standard like Hammarsten, it would be this: to add at the end of each chapter a short summary of the subject matter with a decisive opinion of the author or the translator.

DIABETES. Its Causation and Treatment (with special reference to India). By Ernest E. Waters, M.D., (Edin.), M.R.C.P. (Lond.), Lieutenant Colonel, Indian Medical Service, Civil Surgeon, Howrah, Bengal.[1]

The author states that he is considering diabetes from the Indian standpoint and the position of the practitioner in the East. However, he devotes the major portion of the book to reviewing the evidence offered by a few investigators relative to the physiology and pathology of the disease. No new experimental data are reported. Some statistics are given which are very striking when it is recalled that the natives of India are vegetarians. For example, in 1914 of a third of a million people there were only twenty-three admissions and two deaths from diabetes. The most important chapter is that in which dietaries including Indian dishes are given, with the value of the whole diet calculated. The book may be of some slight value to practitioners in India but not elsewhere. There are many typographical errors throughout the text.

DISEASES OF THE STOMACH, INTESTINES AND PANCREAS. By Robert Coleman Kemp, M.D., professor of gastro-intestinal diseases at the Fordham University Medical School, gastro-enterologist at the Fordham University Clinic, etc.[2]

This is one of those rarer books which is almost indispensable to the surgeon and to the internist, and at the same time of special value to the general practitioner. Its principal virtues are thoroughness coupled with conciseness, virtues which are not possessed by every medical work. Its consciseness makes it very readable. One does not have to wade through a mass of words to find the facts.

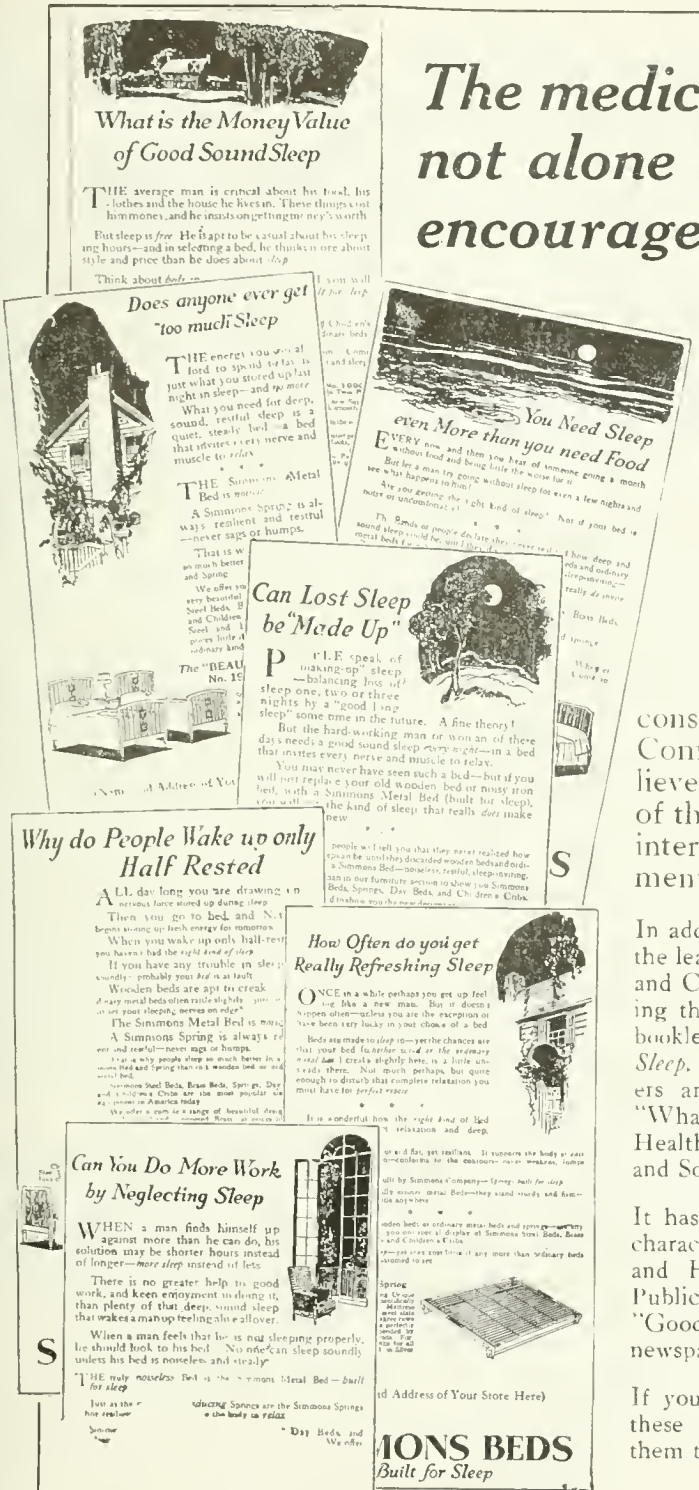
Anatomy and physiology are covered very briefly, but there are several very thorough chapters on physical and chemical examination. A separate chapter is devoted to x-ray findings. The chapter on diet is very complete. Considerable space is devoted to physical methods of treatment, including electricity.

In the consideration of the various diseases and abnormalities, a great deal of attention is paid to the differential diagnosis. In this respect acute abdominal lesions are most thoroughly discussed.

The treatment is stated fully, yet concisely, all approved methods being mentioned. In those lesions where only surgical treatment is of value, the *modus operandi* is briefly described.

(Continued on page 26)

3. W. B. Saunders Co., Philadelphia, 1917, $7.
2. Thacker, Spink & Co., Calcutta, 1917


What is the Money Value of Good Sound Sleep
Does anyone ever get "too much" Sleep
You Need Sleep even More than you need Food
Can Lost Sleep be "Made Up"
Why do People Wake up only Half Rested
How Often do you get Really Refreshing Sleep
Can You Do More Work by Neglecting Sleep
IONS BEDS
Built for Sleep

The medical profession is not alone in its efforts to encourage better habits of sleep

FROM time to time in this space, attention has been directed to Simmons publicity, promoting better habits of sleep.

The work of Public Health Officials and Industrial Welfare Workers, in pointing out the benefits of fresh air and sound, restful sleep, has been consistently supplemented by this Company for a long time. We believe, therefore, that the members of the Medical Profession will be interested in the current advertisements reproduced on this page.

In addition to publicity of this character in the leading newspapers of the United States and Canada, this company is also distributing thousands of instructive and practical booklets upon the all-important subject of *Sleep*. Industrial and Public Welfare Workers are being supplied with the booklet "What the Leading Medical Journals and Health Magazines Say About Separate Beds and Sound Sleep," without cost.

It has been said that cooperation of this character has been of great value to Welfare and Housing Committees as well as to Public Health Officials who conduct "Good Health" departments for their local newspapers.

If you have not yet received a supply of these booklets, we shall be glad to send them to you upon request.

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

Flavor as a Means to Adequate Nutrition

Palatability of food induces the partaking of an amount sufficient for proper nutrition.

Hence, flavoring agents are essential constituents of the diet of persons of jaded appetities, especially invalids and convalescents.

SAUER'S
PURE FLAVORING EXTRACTS

stimulate the desire for food to which they are added, so that the maintenance of adequate nutrition is never a matter requiring persuasive measures with the patient.

Various American and European Expositions have awarded seventeen highest awards to Sauer's Extracts for Purity, Strength and Flavor.

Sauer's is the largest selling brand in the United States.

Further particulars free for the asking.

The C. F. Sauer Company

Richmond, Virginia

COMBATING CANCER

The recent contribution by Prof. Alexander Fraenkel, secretary of the Austrian Society for Combating Cancer,[1] is commented on in the December 20 issue of *The Lancet*.

Dr. Fraenkel sets out clearly and in detail the pathological facts of human and animal cancer and the results of experimental study of the disease. Due prominence is given to the part played by chronic irritation and the great variety of forms which this factor may take, ranging from chemical irritants to gross Metazoan parasites, such as Bilharzia and the Spiroptera found by the Danish investigator, Fibiger, associated with cancer of the stomach in rats. Fraenkel regards this variety in origin as practically excluding a parasitic etiology of cancer, and he goes on to remark acutely that the same variety in the predisposing factors renders any attempt at a specific cancer prophylaxis nugatory, apart from a general improvement in the prevention of all diseases.

The rare cases of spontaneous cure of cancer, and the more numerous instances of success after incomplete operations, are regarded as of the most happy augury for success in the ultimate triumph of a rational therapy. Early and complete removal is emphasized as still the most successful method of treatment, full recognition being given at the same time to the brilliant results of radiotherapy in suitable cases. Fraenkel then goes on to an account of the chemo-therapeutic experiments of von Wassermann and others, emphasizing the necessity of improved methods of diagnosis early in the disease and of research in this direction.

The article concludes with a severe indictment of the extravagant claims of Adamkiewicz to have produced a practically infallible cure with his cancroin, the soluble toxin of a supposed protozoan parasite of cancer. The danger to the credulous public from such irresponsible claims is not less in other countries than in Austria and, shorn of its verbose and florid style, an article conceived on similar lines and circulated broadcast might do something to put down the raising false hopes by interested people, and to encourage the efforts of those who, without hope of material reward, are seeking the solution of one of the most fascinating as well as one of the most serious problems in medicine.

NATIONAL SAFETY COUNCIL SECTION

MODERN MEDICINE is pleased to announce the consummation of an arrangement with the National Safety Council whereby that organization will conduct a special safety section for MODERN MEDICINE, beginning with the May issue.

Through this arrangement MODERN MEDICINE will be enabled to publish in each issue during the year 1920 a special article on some phase of safety or its allied subjects of particular interest to industrial physicians and nurses. This department will in a large measure make available to the readers of MODERN MEDICINE the valuable service of the National Safety Council—the Nation's clearing house for information on statistics, methods, and experiences in accident prevention, sanitation, and allied subjects. Inasmuch as the National Safety Council is a non-commercial, cooperative association of some four thousand of the country's largest industrial concerns, governmental agencies, and technical schools, its membership includes the great bulk of the safety engineering knowledge and talent of the United States.

1. Ueber die Heilbarkeit der Krebskrankheit, Wien. klin. Wehnsehr, November 13, 1919.

A Nation of Good Workers Is A Nation of Good Sleepers

Public welfare and industrial progress demand that men and women sleep long and deep to build up the vitality wasted by our present day intensive methods of living.

The greater utilization of food for tissue reconstruction is effected mostly during sleep. The deeper the sleep, the more effectively all the processes of bodily repair are carried out.

Hence, the vital bearing which the quality of one's sleep has upon the quality of one's waking activities, is at once apparent.

Mental and bodily vigor are undoubtedly enhanced by the use of a first class mattress.

In the Sealy Mattress every requirement of hygienic design, sanitary construction and physiologically correct service has been met. Only antiseptically cleaned long fibre cotton is used and the special air-weave process makes it a complete unit *without tufting.* This mattress invites deep, restful sleep because of its resiliency, and because of the unbroken, smooth surface which molds itself to support every part of the body.

SEALY MATTRESS COMPANY

Sugar Land, Texas

Electrically Lighted Surgical Instruments

The Sign of Service

E. S. I. Co.

Ours is a name of accomplishment in the cause of diagnosis. In the beginning an electrically lighted surgical instrument is made to embody the ideas of a distinguished physician or surgeon. Each accomplishment by the light of this instrument is a tribute to his skill and its efficiency, opening the way to greater gains for diagnosis and to suggestions for betterments in instrument construction.

Building upon the ideas and from the suggestions of these physicians and surgeons, admittedly great in the respective branches of their exacting profession, is the story of "E. S. I. Co.," from the origination of electrically lighted surgical instruments up to the indispensable service they render today.

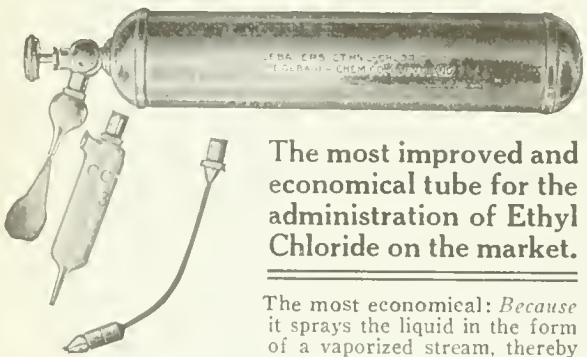
Origination begets imitation. Be sure of our name.

Illustrated and Descriptive Catalogue sent upon request.

Electro Surgical Instrument Company

ROCHESTER, N. Y.

Ethyl Chloride (Gebauer's) Local and General Anesthesia



The most improved and economical tube for the administration of Ethyl Chloride on the market.

The most economical: *Because* it sprays the liquid in the form of a vaporized stream, thereby hastening evaporation and consequent anesthesia, using 1-10 the liquid used by other tubes. *Because* the ethyl chloride is put up in a metal tube that will not *leak* or *clog* and the liquid is guaranteed to maintain its purity indefinitely.

40 grm tube with ordinary spraying nozzle, $1.10
80 " " " " " " 1.75
Flexible spraying nozzle alone, - - - .50
Graduated dropper, - - - - - - - .50

The flexible nozzle and the graduated dropper will fit either size tube and can be used indefinitely.

For Sale By

THE GEBAUER CHEMICAL CO.

CLEVELAND, OHIO

MILITARY ASSOCIATION MEETING

The Twenty-eighth annual meeting of The Association of Military Surgeons of the United States will be held at New Orleans, La., April 22nd to 24th, with headquarters at the Hotel Grunewald.

Three sessions daily will be held and at these addresses will be made on pertinent topics not confined absolutely to the field of military surgery. This meeting occurs immediately prior to that of the American Medical Association whose meeting begins on April 26 and it is hoped that many of those who expect to attend the latter meeting may arrange their plans so as to take in this meeting.

AMERICAN SCHOOL HYGIENE ASSOCIATION

A very important part of the program presented by the National Educational Association at their meeting in Cleveland, O., February 23 to 28, 1920, was the Section on School Hygiene.

"School Health Education in the United States" was the contribution by P. P. Claxton, United States Commissioner of Education, and succeeding papers emphasized the special problems of different communities, rural and urban, and health programs in colleges.

The address of Hiram Byrd on the "Democratization of Hygiene" discussed the needs and the means of stimulating health practices. Special problems of health administration were handled by representative men in their several fields. The notable achievements of the Cleveland, Ohio., schools in sight saving methods for the partially blind were reported by R. B. Irwin, of the Board of Education, Cleveland.

A symposium on the relation of health authorities to school health service was offered, and Frankwood E. Williams of the National Committee for Mental Hygiene, New York City, emphasized the relation of mental hygiene to school health education.

The tendency indicated to direct public interest along the lines of a consistent and scientifically planned program of health education constitutes the best hope of the times.

BRITISH CARE AND TRAINING OF THE BLIND

A bill has been introduced in the British Parliament concerning the care and training of blind persons. It provides that it shall be the duty of every local authority to make sufficient and suitable provision for the technical training, employment, and maintenance of every blind person over sixteen years of age within its jurisdiction.

The local authority is further required to establish and maintain technical schools for the blind, unless arrangements can be made with existing institutions for the provision of such training, in which event the authority shall have power to contribute to the enlargement and maintenance of these places. Technical training is limited to five years, and to persons under fifty years of age. No expense shall be incurred, however, without the approval of the Board of Education.

Further provisions of the bill are that (1) workshops shall be established where arrangements can not be made by the local authority with existing institutions to provide employment, but blind workers may work elsewhere should it be to their benefit; (2) the local authority shall make a grant of £1 (roughly $5) a week for the purpose of increasing the earnings of each blind worker; and (3) such assistance shall not debar the blind person from exercising any franchise or subjeet him to any disability.

HAY-FEVER
Can be Prevented

Industrial physicians and health officials will be especially interested this year in Pollen Antigen because through its use absenteeism and lowered production due to Hay-Fever can be prevented.

CLINICAL results covering more than 12,000 cases, attest the value of **Pollen Antigen.**[1] During the past five years, from 1915 to 1919 inclusive, **Pollen Antigen** has afforded relief from hay-fever by conferring an average protection of 82.7%.

THE treatment with **Pollen Antigen** should be started six weeks before the date of the usual onset of hay-fever. Even in those not protected, the symptoms are usually rendered mild and the attack cut short.

POLLEN Antigen is now universally used for hay-fever because:

1. Contains all the antigenic properties of pollen grains.
2. Will not deteriorate.
3. Standardized by complement fixation.
4. May be used without preliminary diagnostic tests.
5. Gives uniformily consistent results each year.

REQUESTS for further information are invited.

Lederle Antitoxin Laboratories

511 Fifth Avenue
New York City

Chicago Kansas City San Francisco New Orleans Montreal Winnipeg Minneapolis

[1]The name POLLEN ANTIGEN denotes the product of the Lederle Antitoxin Laboratories.

Made to Easily Digest

Food Cells All Exploded

Puffed wheat is whole wheat, better-cooked than wheat ever was before.

The process was invented by Prof. A. P. Anderson, formerly of Columbia University. And it is this:

Whole grains are sealed in huge guns, then revolved for an hour in 550 degrees of heat. The trifle of moisture inside each food cell is thus changed to steam.

Then the guns are shot and the steam explodes. Over 100 million explosions occur in each kernel—one for every food cell.

The grains are puffed to bubbles, eight times normal size. They become flavory tidbits, thin and crisp and flimsy. And every granule is fitted to easily digest.

So with all the Puffed Grains. All are steam-exploded. All are delightful foods. You find many conditions where such foods are ideal for your purpose.

The Quaker Oats Company

Chicago

Puffed Wheat
Puffed Rice
Corn Puffs

3282

INFANT MORTALITY A SOCIAL PROBLEM

From a recent study of the poor in London's East Side, conducted by the National Birth Rate Commission of England, Dr. C. W. Saleeby, chairman of the Commission, declares that infant mortality is not really a medical problem, but is a social problem of motherhood and a question of racial morals.

Jewish mothers are best, he says, and the Irish mother is second, with the English mother third in rank. Breast feeding is almost universal among Jewish mothers, and among them there is a minimum of morality diseases.

Figures are quoted to the effect that despite bad housing, bad sanitation, and the practical absence of child welfare efforts, infant mortality in western Ireland is only about thirty-five per thousand, as compared with 135 per thousand in Bradford, Eng., which has the best equipment for infant welfare work in the world.

DO MOVIES HURT THE EYES?

"The fact that millions of people go to motion picture shows throughout the United States daily without experiencing any discomfort to their eyes, or that such eye trouble that is found is not traceable to 'over indulgence' in the movies, would seem to indicate that motion pictures are not injurious to the vision," says the United States Public Health Service.

"It is true, of course, that some people do experience a certain amount of eye strain at a motion picture, but in these cases the trouble appears to be due to an ocular defect rather than to the motion picture. Such persons should therefore have the eyes examined by a competent eye specialist, for it is quite certain that the same person would find even more discomfort in the same period of concentrated reading. Eye discomfort in the movies should be regarded as a danger signal and should lead the sufferer to the doctor's office for an examination."

BRINGING HEALTH TO THE PEOPLE

The necessity for efficient organization to bring health to the people, and some of the defects of health programs in the United States form the subject of an address by Lee K. Frankel, Ph.D., president of the American Public Health Association, as reported in the February issue of the *Ohio State Medical Journal*. He regards the work of the public health officers in the United States as incessant and as but slightly appreciated notwithstanding the fact that their activities during the past thirty years have brought about marked reduction in mortality and morbidity. Their salaries are inadequate and the health appropriation far below what it should be. "We must find the means through legislative enactment and through public opinion to see to it that we obtain appropriation for public health work that will place on our statute books laws which will give us full-time health officers. . . . The day is coming when we shall have tried to live up to that old biblical promise that a man shall live three score years and ten."

NO MORE PARTIAL DISABILITY

After March 1, 1920, no insurance policy will be written which contains a partial disability clause for sickness, according to announcement made by the *National Underwriter*. Partial disability has long been a bugbear of insurance companies. Decisions in such claims are always open to question, and that disability clauses probably should have been dropped long ago is the opinion of most insurance men.

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment. Literature and samples from

RIEDEL & CO.
326 Broadway
New York City

FOR DIET CONTROL IN INFANT FEEDING

The choice of these dependable products affords the physician convenient means of selecting food mixtures suited to the individual requirements of individual cases.

MEAD'S DEXTRI-MALTOSE NO. 1

(With Sodium Chloride 2%)

For general use in infant feeding. Especially indicated in infants recovering from diarrhoea, infants with feeble powers of digestion who have tendencies to diarrhoea. Valuable as an addition to Protein Milk.

MEAD'S DRY MALT SOUP STOCK

For difficult feeding cases. Indicated in marasmus, weight disturbance (failure to gain), infants afflicted with recurrent diarrhoea from intestinal indigestion, and those cases occasionally met which do not do well on milk, water and sugar mixtures.

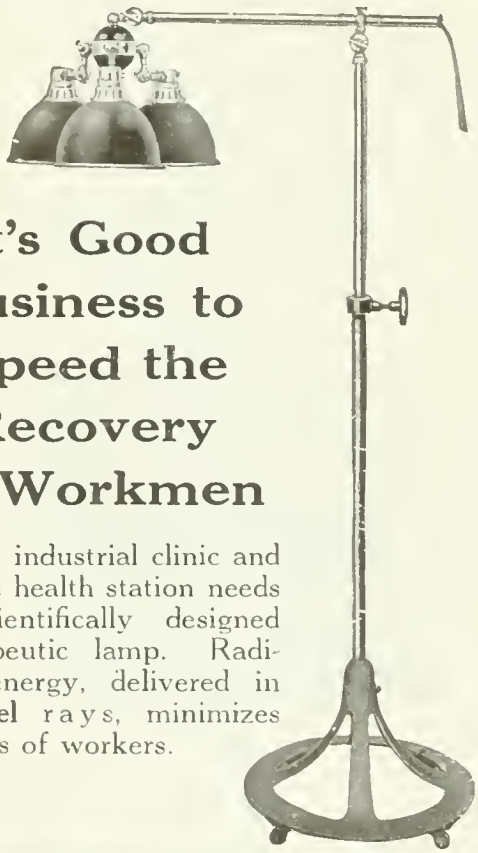
MEAD'S DEXTRI-MALTOSE NO. 3

(With Potassium Carbonate 2%)

For use in constipation, when boiled feedings are used, or where the addition of potassium to the infant's diet is indicated.

Full information regarding these products furnished on request.

MEAD JOHNSON & CO. **Evansville, Ind.**



It's Good Business to Speed the Recovery of Workmen

Every industrial clinic and public health station needs a scientifically designed therapeutic lamp. Radiant energy, delivered in **parallel** rays, minimizes layoffs of workers.

Thermolite
LIGHT AND HEAT INFUSER

Delivers Radiant Light and Heat in PARALLEL Rays

Extremely effective in the treatment of—

Neuralgia	Gastralgia	Rheumatism
Arthritis	Earache	Lumbago
Dermatitis	Laryngitis	Neuritis
Dismenorrhea	Mumps	Ulcers
Shingles	Bronchitis	Cystitis

and many other conditions.

...nd for ... and free book. Ph to the ad...

ThermoLite is supplied in two forms the **Triplex** for hospital clinics and office use, and **Simplex** (single lamp with or without stand) for home use.

H. G. McFaddin & Co.
39 Warren St., New York City

FIGHTS DISEASE IN THE HOLY LAND

American standards in the care of the sick and in preventive health work are revolutionizing the ancient and abominable conditions in Palestine. Hospitals and emergency stations equipped with highly trained surgeons are already established, and in Palestine there is in operation a training school for nurses. Henrietta Szold, formerly of Baltimore, but for the past fifteen years of New York, editor of many works of Jewish progress, and secretary of the Jewish Publication Society from 1893 to 1916, has recently been appointed by the American Zionists' Organization to give expert supervision to the medical unit.

Once before Miss Szold investigated health conditions in Jerusalem, when in 1909 she observed the terrible ravages of cholera and spotted typhus. At that time she conceived the idea of district nursing, and on her return she organized "Hadessah," the woman's branch of the Zionist movement. It is conceded that Miss Szold brings to her task all the requisite attributes for its successful prosecution.

NON-SPECIFIC IMMUNITY

The seasoned soldier is more resistant even to newly imported infections than the recent recruit. Especially are those used to crowd life able to resist respiratory infections, according to Dr. Victor C. Vaughan, in the January issue of *The Military Surgeon*. From the Army experience of 1917-18, Dr. Vaughan deduces:

(1) That when armies are recruited and men from all fields of life are crowded together, those from areas sparsely settled and who are unaccustomed to crowd life will prove most susceptible to infections.

(2) That the man who has been long accustomed to crowd life and who has consequently frequently inhaled particulate protiens (bacteria), acquires a non-specific immunity, which helps him in withstanding infection.

(3) That the seasoned soldier bears even newly imported infections better than his comrade who has recently joined the ranks.

Such non-specific immunity does not operate to prevent infection from a newly imported virus, but it mitigates the effects in some instances so markedly that no symptoms are recognizable, while in others effects are shown only in the lower death rates among those possessing it. The specific immunity which this non-specific immunity has enabled the individual to attain may protect against from eight to twelve times the minimum lethal dose.

ADVANTAGES OF URBAN CHILD

That the city child has five times the chance of the rural child to reach maturity is the opinion expressed by Dr. Thomas D. Wood, Columbia University, New York, as expressed before a conference of teachers in New Jersey recently. His opinion is based upon a recent survey of 500,000 children, which proved that country children lead city children in defects of the teeth, defective tonsils, adenoids, malnutrition, and breathing defects.

Ignorance, prejudice, and lack of health supervision were the reasons assigned by Dr. Wood for the poor health in the country.

MISS HAY RECEIVES APPOINTMENT

Announcement is made of the appointment of Miss Helen Scott Hay, of Chicago, as chief nurse to the American Red Cross Commission in Europe. Miss Hay was formerly superintendent of the Illinois Training School for Nurses, and chief nurse of the Red Cross Commission to the Balkans.

The nutrient value of VIROL illustrated in a series of cases, particulars of which have been supplied by medical men.

CASE No. 5

Virol is a valuable food for invalids and children. It is a preparation composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.
In glass jars:
50c, $1.00 and $2.00.

This wasted little one had been fed nine months at the breast and three months on condensed milk. Wasting continued.

The usual remedies having failed he was put first on a diet of VIROL and barley water, then milk was added. His weight uniformly increased at the rate of six ounces a week. Here he is a fine, bright, healthy child weighing 30 lbs. Case reported in "Medical Times", London, England.

WASTING—Virol is unequalled as a repairer of tissue waste, and is therefore of especial value in all debilitating conditions.

Virol contains the proper proportion of fat so necessary in a perfect diet for invalids and infants. It is assimilated with ease by the weakest stomach.

Virol is widely prescribed as an addition to the food of growing children and in all wasting conditions of children and adults.

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

Virol

Used in more than 2000 hospitals, sanatoria, and infant clinics in Great Britain

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

MERCK & CO. NEW YORK · CHEMICAL WORKS, RAHWAY, N.J. · MERCK

On Prescriptions—

Merck's

Anusol
HEMORRHOIDAL
Suppositories

You can employ Anusol Suppositories from infancy to old age.

Widely known for the pain and inflammation relief they readily afford, they are nevertheless absolutely free from narcotic and habit-forming ingredients.

Or from anything else injurious.

We guarantee it.

Besides the formula is on every label.

Sample on request.

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX
WHITE, RED AND BLACK LABEL
AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

THE ELLIS HEALTH LAW IN GEORGIA

That inefficiency in health work is largely due to the lack of proper machinery for its administration is again emphasized by the progress in Georgia noted in the January reports of progress under the Ellis Health Law. The advantage of efficient county organization under the operation of the law is exemplified in the report of Dr. B. D. Blackwelder, health commissioner of Troup County During the month he delivered twenty-six lectures, an average of almost one per day; sent out 806 letters, and distributed 1,797 pieces of literature.

He examined, during the month, 760 white school children. Of these 314 had tonsil defects; 185 bad teeth, and 70 breathing defects. As a result of his examination, 62 children had their tonsils removed, 94 bad teeth fixed, 29 eyes treated and 31 breathing defects corrected. There were 216 children in the county who had serious physical defects corrected when the same were called to the attention of their parents.

Dr. Blackwelder also had installed 52 sanitary latrines and 700 home-water supplies, which had been pronounced bad, were made safe. Six new counties are about to qualify under the Ellis law.

A SURVEY OF NEW YORK FACTORIES

The Department of Health of New York announces that its Division of Industrial Hygiene will make a sanitary survey of factories, mercantile establishments, and office buildings for the purpose of ascertaining any conditions which might impair the health of workers. Where a large group of employees is concerned, special clinics will be established for the purpose of making physical examinations. The material collected by the surveys will be the subject of a special report.

MENTALITY TESTS A SAFETY MEASURE

With the announced purpose of putting an end to the operation of street cars and trains in Berkeley, Cal., by "feeble-minded, insane, epileptic, psychopaths, neuropaths, drug fiends, and other incompetent persons," the city council of Berkeley has passed an ordinance providing mental tests for all operators. The mental requirements are rigid and are to be given by members of the psychopathic clinic of the Berkeley police department, under Commissioner of Health and Safety Charles E. Heywood, Chief of Police Vollmer, and a medical psychologist to be selected by the others.

A CHILDREN'S BUREAU IN CALIFORNIA

The establishment of a Children's Bureau in California under the direction of Dr. Ethel Watters is a signal step in advance in the public health program of the state. The department proposes to establish maternity or pre-natal centers sufficient to provide for all cases not receiving care from private physicians. They will undertake to enforce complete birth registration and to provide health centers for children of pre-school age. The program will also include general educational work in the prevention of communicable disease in hygiene and infant feeding, and a compulsory course in child hygiene in public schools.

TYPHUS MORTALITY CUT

The mortality from typhus fever has been reduced from 47 per cent to 6 per cent by the use of a new serum adopted by Red Cross workers at Ekaterinodar, in the Kuban district of Russia according to reports received. This serum may save Russia from decimation by typhus.

Arsenic and Mercury are Indispensable in the Treatment of Syphilis

We recommend

SALVARSAN or NEOSALVARSAN

(Arsphenamine-Metz) (Neoarsphenamine-Metz)

powerful and easily administered spirochetecides, which are as efficacious as the imported products,

and

BICHLORIDOL or SALICIDOL

(Mercury Bichloride) (Mercury Salicylate)

put up in **COLLAPSULES** (compressible ampules), which insure absolute accuracy of dosage with absence of pain after intramuscular injection.

This combination of anti-luetics has no superior in the therapeutic field. Literature upon application to

H. A. METZ LABORATORIES, Inc.

122 HUDSON STREET,
NEW YORK

TRADE MARK

For twenty-five years the firm of V. Mueller & Co. has supplied the needs of surgeons and hospitals.

Mueller materials are known for their excellent quality and pattern.

Unusual facilities are available to those contemplating the installation of industrial hospitals or first aid rooms.

A complete stock of surgical instruments, furniture and apparatus for immediate delivery means service which cannot be found elsewhere.

Our estimating department will gladly submit plans and quotations.

V. MUELLER & CO.

1771-81 Ogden Avenue Chicago

Cleans **COFFEE POTS** and **URNS** quickly and thoroughly, making them as good as new.

Cleans **URN SACKS** thoroughly, taking out all the Coffee odors.

DO NOT USE SOAP when cleaning metals with the solvent. The ideal way to clean metal surfaces, and avoid injury, as well as save labor, is to use a cleaner that will loosen the dirt and grease without harm to the hands.

ARISTON MAGIC SOLVENT will meet every requirement for perfect cleaning with the least effort and positive assurance of no injury. One spoonful to pail of water is plenty for general use. A 5-pound carton will last a long time.

Send us a dollar and we will ship you a 5-lb. carton. It is not packed in larger size, as the solvent should be used sparingly.

CALUMET TEA & COFFEE COMPANY

409-411 W. Huron St., Chicago, Ill.

"Dealers Direct with You"

TUBERCULOSIS SCHOOL INCORPORATED

A number of physicians of Colorado Springs filed an affidavit, January 1, for the incorporation of the Colorado School of Tuberculosis, the purposes of which are described as follows: "To furnish without pecuniary profit to its members, opportunity for special advanced study in tuberculosis to physicians and others through the medium of regular courses of instruction and institutions, and laboratories and other agencies devoted to investigation, treatment and cure of the disease."

"A POOR MAN'S DRUG STORE"

The Salvation Army's hospital and dispensary recently opened at Roxbury, Mass., provides, among other features, a "Poor Man's Drug Store," where prescriptions will be filled and medicine and other sick room supplies will be offered at cost, or without charge in necessitous cases. This is one of the very few pharmacies of its kind in the United States. The institution also provides ample ward facilities, dental, surgical, operating and x-ray apparatus. Capt. Edward Rudy Gifford is in charge.

NEW THERMOMETER FOR TAKING SKIN TEMPERATURE

The Carnegie Institute nutrition laboratory experiments at Boston made use of a special thermometer for registering the temperature of the skin. The process is thermoelectric, one metallic junction being placed in a bath of constant temperature while the other is applied to the skin. The current set up is directly proportional to the difference in temperature of the two junctions. It has been found that the surface temperature of different parts of the back and chest vary as much as 20 degrees, and it is considered that these indications will prove of value in testing the physical condition.

HEALTH WORK IN JERUSALEM

The activities of the Jewish Health Bureau, established by Nathan Straus in Jerusalem, were continued during the period between September, 1914, and December, 1918, under a variety of difficulties. Some of the members of the organization were compelled to become Turkish citizens in order to carry on their work. The bacteriological department was of the greatest service during the terrible epidemic of cholera, dysentery, malaria, and scarlet fever. The work of the department was not confined to Jerusalem, but included all of the towns of Palestine and all the colonies within its scope of activity. Inoculations against cholera and instructions as to their use were sent everywhere. The bacteriological department carried out 27,290 examinations during the period reported on. It provided 1,491,962 cc. of typhus lymph. It administered 30,750 preventive injections against cholera. The hygienic and malaria department examined the blood of 38,380 persons and provided 154,115 kilograms of quinin. The department of eye diseases discharged 441,874 visits to its clinics. In the department's hospital, 436 severe operations were carried out. Patients passed a total of 6,042 days in the hospital. The Bureau conducted two clinics for eye diseases and found it possible to open a museum of hygiene which now contains collections of models illustrating the conditions of life of the native population from a hygienic point of view, an herbarium of medicinal plants native to Palestine, and a collection of photographs illustrating the water cisterns in Jerusalem and the development of the typical diseases of the country.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2. May, 1920 Number 5

NOTES AND COMMENT

AMERICAN MEDICAL ASSOCIATION

THE city of New Orleans was taxed to its utmost to provide accommodations for the large crowds of physicians and surgeons who journeyed there to attend the annual convention of the American Medical Association April 27 to 30. Many of the allied associations who regularly hold their meetings with the American Medical Association were also in attendance at the same time in large numbers. The combined interest in scientific discussion and in the health and medical problems of the Southland drew an unexpectedly large crowd to the conventions. There were the usual scientific productions, valuable exhibits of medical progress, and keen interest in practical problems. To the readers of MODERN MEDICINE the three sessions of the Section of Preventive Medicine and Public Health were of special interest.

The Association discussed ardently some practical questions of policy. Among others, the subject of Workmen's Health Insurance received perhaps the most earnest attention. The House of Delegates went on record in disapproval of health insurance, but recognized the necessity of analyzing the conditions which through this issue have come into prominence. A resolution directing an investigation of those conditions by the Council on Health and Public Instruction offers the members the possibility of scientific proposals on the medical needs which brought health insurance to the front.

The address of the president, Rear Admiral William C. Braistead, took a firm stand for a national department of health, declaring that a great, rich country should not depend upon enlightened millionaires to perform the obvious duty of looking after the public health. Admiral Braistead declared, also, for a broad program of child hygiene and general preventive measures.

INDUSTRIAL PHYSICIANS MEET

THE annual convention of the American Association of Industrial Physicians and Surgeons held at New Orleans April 26 and 27, 1920, was attended by a small but enthusiastic body of industrial physicians and surgeons from all parts of the country. Those who took the long trip were well repaid by the excellence of the program and the practical nature of the discussions.

The address of the president, Dr. Harry E. Mock, was a very practical vision of the future of industrial medicine. "Wound Infection in Industry" was succinctly treated by Dr. Drury Hinton, of E. I. du Pont de Nemours & Co. Dr. J. A. Watkins, of the Lunkenheimer Company, Cincinnati, reviewed the progress of training for the industrial physician. Dr. Edward Martin, commissioner, Department of Health of Pennsylvania, outlined the very practical plans of the Pennsylvania Department of Health in the treatment of venereal disease. A scientific contribution to the subject of industrial physiology was given by Dr. A. H. Ryan of the Scovil Manufacturing Company, who dealt with the subject of fatigue and efficiency tests.

The subjects which excited the most earnest discussions were those of the round tables on "The Problems of First Aid," "Standardized Surgical Methods in Industry," and "The Problem of Compensation for Sickness." The first brought a re-

view of the actual plans in operation in industries in handling and treating first aid cases. The second brought out the fact that standardized methods are out of the question but that minimum standard may be established on which there would be an agreement. The third gave a résumé of the argument for and against health insurance as proposed in this country. The presence of Dr. Norman Walker of Scotland, who spoke favorably of the English experience, was of special interest.

In addition to the program of the Association the subject of industrial medicine was treated in several contributions to the Section on Preventive Medicine and Public Health of the American Medical Association.

The Association of Industrial Physicians and Surgeons went on record for an enlarged program for the promotion of industrial medicine. An aggressive policy was agreed upon to promote membership and increase the service of the Association to its members. The dues were increased for this purpose, and optimism was expressed on all hands in regard to the work to be done.

Officers were elected as follows: Dr. Otto P. Geier, of the Cincinnati Milling Machine Co., was elected president; Dr. I. R. Crowder, of the Pullman Co., Chicago, Ill., vice-president; Dr. W. Irving Clark, of the Norton Co., Worcester, Mass., second vice-president; and Dr. Francis D. Patterson, Department of Labor and Industry, Pennsylvania, secretary-treasurer.

"HOSPITAL PROGRESS"

MAGAZINES with a mission are always welcome. We extend hearty greetings, therefore, to *Hospital Progress*, the official organ of the Catholic Hospital Association, which begins this month a career of assured usefulness and inspiration.

In modest terms the new magazine states that it "wishes to become the medium through which the best thought and practice in hospital service to the sick will be worked into the lives of those who are consecrated to this service. . . . Consecration to service must be wrought into the lives of all who care for the sick. . . . Hospital Progress wants to help all to realize more and more deeply from month to month that care of the sick is and must become in very deed a consecration of mind and heart and soul."

With the backing of more than five hundred Catholic hospitals which have been striving for many years, aye, centuries, to realize this goal, and the cordial support of all hospital workers, doctors, nurses, and laymen alike, who believe in and strive for service to the sick, there is a place and a large place for the new magazine.

HUBERT WORK M.D.

President-Elect American Medical Association

The election of Dr. Hubert Work, Pueblo, Colo., as president of the American Medical Association brings to that office a man especially fitted by training and experience for the efficient discharge of the important and urgent problems that confront the Association at the present time. Dr. Work was born near Marion, Pa., July 3, 1860. He graduated from Indiana, Pennsylvania, and California state normal schools. He received his degree in medicine from the University of Pennsylvania in 1885. He has served as physician in charge of Wooderaft Hospital. As Colonel in the Medical Reserve Corps he was adviser to the Provost Marshal General. He has been a member of the House of Delegates of the American Medical Association since 1904, in which Body he has held the office of speaker since 1916. Dr. Work's career has been marked by a high order of public service. His equipment and parliamentary experience especially fit him for the post to which he has been called by the profession. Nor have his activities been confined to medical matters. He is one of the few physicians in the country who have achieved political distinction. His candidacy for the United States Senate was defeated by only a small majority, and for several years he has served his state as a member of the Republican National Committee. His war service has been mentioned. Under his official direction the Association cannot fail to be marked by progress and increased cooperation.

THE SOCIAL ASPECT OF THE CARDIAC CASE

IN the treatment of cardiac disease the clinician whose experience ranges from the charity wards of the hospital or dispensary to the well-to-do patient must realize that there are two facts which characterize the situation. It is not often commented upon but it is nevertheless true that the majority of cardiac patients of means rarely have to spend time in a hospital. On the other hand, the free wards of a hospital are always rich in cardiac material and frequently this material consists of patients who have been in before and who surely will come in again. The cause for such an anomalous state of affairs is recognizable as one dealing purely with the economic problem of the individual patient. Even after a cardiac breakdown after-treatment can be summarized in a sentence, "The patient must keep under his tolerance if he is to retain his health and working efficiency." It is naturally easy for a man of means so to regulate his affairs as to cut his work in two, get the requisite rest, and the trips to healthier climates when necessary; but it may be impossible to carry out proper medical treatment of the poorer cardiac patient.

This, in brief, is a statement of the treatment of heart disease today; and this the reason why a discussion of the social aspect of the cardiac case is a matter of interest by medical workers. Thompson[1] studied the problem purely from the social aspect. She states that with the increasing interest in the anti-tuberculosis campaign there has been a gradual diminution in the proportion of deaths from tuberculosis and a gradual increase in the deaths from heart disease in the United States, in Indiana, and in New York City. Figured on the basis of cost, Miss Thompson reckons that more than five million dollars were lost from death due to heart disease in twelve months time.

The causes of heart disease are discussed by her under the summary: "Cardiac disease may almost be said to be a by-product of some other disease in every instance. Protect the patient from the primary disease and the heart will not be injured further. Subsequent management can control the strain placed upon the damaged heart so as to prevent the possible cardiac failure."

Under the heading of medical and social treatment, the statement is made that since the advent of preventive medicine treatment is divided into three main groups: (1) treatment of cardiac children; (2) adults; (3) convalescents. The work of the Massachusetts General Hospital has shown the possibility of improvement in the treatment of children, while Bellevue's Sharon experiment has proved the advisability of continuing hospital treatment of adults in a convalescent home where some suitable occupational training is instituted.

Her statistics on patients who are still living are interesting. Of a total of 70 cardiac patients seen in the city clinic only 17 were born in the city; 19 came from the small town; 19 from the country; and the place of birth of 15 was unknown. The occupations of the men were almost entirely those belonging to the class of hard labor. The occupations of the women were, strange to say, in the home. It seems wise to emphasize an often neglected fact, namely, that housekeeping, especially under the strain of modern domestic life, is far from being the sinecure so many men seem to consider it. In fact, from the statistics of Miss Thompson the housewife belongs to the class of hard laborers.

The conclusion of the social worker can be read with considerable benefit by the physician. She says, for instance, "doctors should not be satisfied to treat an infectious disease and pay little or no attention to the endangered heart." (Doctors are now seeing cases of myocardial degenerations which unquestionably followed the influenza epidemic of 1918 and 1919, although at the time of the epidemic it was constantly stated that the heart escaped.) "Mothers with little children should be warned against taking a weakly child where it may catch an infectious disease. Hospital doctors should be careful not to dismiss a cardiac case before sufficient compensation is established or before the social worker has investigated the conditions to which the patient is to return. After leaving the hospital the greatest difficulty in treating such patients now occurs." Beyond general suggestions Miss Thompson's study does not help much here. Purely from the standpoint of social economics it is a community duty to see that the cardiac patient, after leaving the hospital, is not forced into a situation from which in a short time he must again enter the hospital and which will ultimately result in total economic disability and finally death. Beginnings even small must be made in the out-patient departments of hospitals, and in convalescent homes, for it is in these institutions the needs of the patient must be worked out, and only through this service may we look toward a real rehabilitation of this type of patient. The principle is simple enough; the practice, as Miss Thompson says, depends to great extent on the attitude of the community and especially of the legislature. S. S.

1. Thompson, Lela Frances, A.M.: Indiana University Studies, Study No. 42, The Social Aspect of the Cardiac Case. A Study Based Upon One Hundred Fifty-four Cardiac Cases Referred to the Social Service Department of Indiana University.

THE RECONSTRUCTION OF THE SICK CHILD*

By A. LEVINSON, Chicago

In the healing arts, disease is of the same interest to the physician that a mental crisis is to the psychologist—a phenomenon to be studied, a situation to be met. But the chief concern centers on the general reaction of the organism and its ability to resume a normal course.

The entire mechanism is to some degree permanently damaged by every onslaught of disease, and the physician needs to stand by long after the acute attack.

What regeneration cannot accomplish in the way of restoration, the physician must compensate for in a prescribed régime which will shorten the convalescence and reduce the permanent handicap.

OF late a great deal of attention is being paid to the prevention of disease in children and to the treatment of sick children. There is one phase of the subject, however, which as yet has not been elaborated upon, and that is the convalescent child, his state of body and mind, and his physical and mental needs. The subject seems to be of such vital importance as to justify a short discussion of it in this journal, for an intelligent control during convalescence may depend the degree of restoration.

At the outset, it is wise to understand what we mean by convalescence, and how long a period convalescence embraces. Convalescence is the period of recuperation; it is the period elapsing between the height of the disease that attacked the individual and the time of his return to his normal state of health. The length of this period is necessarily arbitrary, depending on the nature of the malady, the amount of damage it has produced, and the degree of resistance the patient has left from the disease. Convalescence may take one week, one year, or it may require the rest of the individual's lifetime. Some children recover from measles within a week or two; others do not recover for the rest of their lives.

In order to understand the finer points of convalescence, one must get an insight to the pathology, or to the so-called pathological physiology of both disease and convalescence. There is no disease attacking the human organism which does not eventually leave its imprint on every organ of the body. If the disease is at all systemic, expressing itself in an elevation of temperature, acceleration of pulse, and an increase in the rate of respiration, the parenchymatous organs of the body suffer sooner or later. In some diseases the heart muscle suffers most, such as is the case in diphtheria; in other diseases the kidneys suffer most, such as occurs in some cases of scarlet fever. There is, however, no disease of any account that leaves any of the more important organs of the body undamaged. If no actual inflammation or degeneration of the organs occurs, there is at least a lowered resistance of the more important organs of the body, and therefore also a change in the physiology of the organs. In other words, every organ loses a certain degree of its power to perform the normal amount of work consistent with the natural state of the body. This is true in all ages, but is especially true in children, in whom the organism is in a state of constant change and needs double or triple the amount of energy required of the organs of the older individual.

Synchronous Changes in Organs

We can no longer separate diseases into stages, assigning each stage a certain change in the various organs of the body, as was the custom among the older pathologists and clinicians. We can not even, properly speaking, limit the pathology of a given disease to one organ. While it is true that a single organ may bear the brunt of change in certain diseases, every other organ necessarily partakes of some changes, so that, while the intestines bear the brunt of the disease in typhoid fever, every other organ in the body feels the effect of the disease; and while the meninges is mainly affected in meningitis, every other part of the body suffers concurrently in that disease.

With this broader understanding of the pathology of disease, convalescence assumes greater importance from the standpoint of prophylaxis and treatment. Once it is appreciated that every disease attacks every organ in the patient's body, we can not make light of the period of restoration or reparation. It is necessary for every organ of the body to regenerate, to replace the damage done, and to gather new vitality. Some of the damage done can never be replaced. A broken heart can never be mended; an ulcerated lung can never be patched up. However, if the lesion has not been extensive, it is possible for regenera-

*The first of a series of articles dealing with medicosociologic problems in the field of pediatrics to be prepared by Dr. Levinson for the pages of Modern Medicine.

tion to take place if too much strain is not put on this very organ, and here arises the necessity for a proper understanding of convalescence. Unless the physician in charge of the convalescent patient—and it is urged that every convalescing patient must be in charge of a physician—has the proper understanding of convalescence, of its pathology, of its physiology, of its inherent dangers, and of its potency for the good of the patient, the convalescent period may not only fail of benefit, but may constitute a progressive stage of the disease.

One cannot, of course, lay down any hard and fast rules as to treatment during convalescence. The treatment must necessarily vary with the disease and with the patient. Still there are some generalities that can be outlined. This we have attempted to do.

Role of Rest in Prevention

Just as it is necessary to preserve the child's energy during disease, so is its conservation essential during convalescence. In fact, it is more important to conserve energy during convalescence, for during the actual illness a child is too sick to overexert himself, while during convalescence, when strength is just beginning to return, the child is likely to overexert himself and thus cause a dilatation of the heart.

Experience has shown that the best way to prevent a carditis during disease or convalescence is to give the heart rest. Rest in bed is necessarily the best way of taking off the burden from the patient's heart. When one considers the enormous number of children who are laid up in their homes and in hospitals with cardiac trouble, the conclusion must follow that possibly we are too lax in the after-treatment of children's disease, that possibly we do not keep our patients long enough in bed after the subsidence of an acute infectious process. It is hard to keep well children in bed. No sooner does a child's temperature drop, but he wants to be out of bed and to return to normal activity. However, the danger of overexertion on the part of the heart makes it imperative to give the heart an extended rest, and reeducate the child slowly in regard to resumption of his normal activities.

The Need of Sunshine and Air

"I suppose I cannot take the child out for another two or three weeks," is the usual intonation of the mother during the child's convalescence. This same mother used to take her baby out for fresh air during the severest storms, when cattle breeders would not allow their stock to be outside; yet, after the child had pneumonia, she would keep it in, in spite of the lack of sunshine in the house and the abundance of it outside.

I believe it is well worth while to emphasize that, while a convalescent child needs rest, he also needs sunshine and air, even more so than a healthy child. It is, therefore, imperative to give the child a chance to be out on the porch in his wheel chair when the weather permits, and gradually to get him used even to cold air.

Food Requirements

Contact with physicians has taught me that two extremes are allowed in feeding convalescent children. One group of men overfeeds the children and the other underfeeds them. The first group insists that the convalescent child needs strength, which it must get through an abundance of food. The other group insists that the convalescent child can not digest even ordinary food.

The truth seems to be between the extremes. A convalescent child needs proportionately more food than does a healthy child; but his digestive power is not so good. While I usually feed convalescent children more often than healthy children, I believe the decision can in most cases be left to the child himself. If he insists on eating, it is a sign that he can stand it. Of course, the food should be as simple as possible. On the other hand, if a child refuses food there is something wrong with his digestive apparatus, and this child should not be overfed, although he should not be starved, but should be given enough food to sustain him.

Restore by Constructive Play

In another article[1] we have discussed at length the psychological changes occurring during a child's illness. Here it becomes important to understand the child's mental attitude during convalescence, and all efforts should be exerted to restore him to a normal psychological state. This can be done by studying the child's peculiarities, by furnishing him sufficient toys, and by teaching him to do something. Constructive play is important throughout childhood, but is doubly important during convalescence. The child begins to feel that he is doing something, that he is constructing, that he is of value. Of course, the work must be regulated so as not to overexert the child. Well planned, easy, constructive play is far from harmful and may be of the greatest importance to the convalescent child. Directed play provides a normal outlet for the nervous impulses of the convalescent child. The utmost skill may be required to guide him out of the pathologic attitude and to prevent later neuroses.

1. Levinson, A.: The Psychology of the Sick Child, to be published in the International Clinics.

ST. FRANCIS' COUNTRY HOUSE FOR CONVALESCENTS AT DARBY, PA.

ST. FRANCIS' Country House for Convalescents undertakes the restoration of patients with reduced nervous control. It provides rest and strives to inculcate the habits which are essential if a complete cure is to be achieved. It was founded for the free care of convalescent women. The need of such a place had been long felt, and its establishment often agitated. During the winter of 1912-1913 interest was revived in the project when several Catholic ladies asked the Archbishop's blessing on the work. After some discussion, a meeting was called at the residence of the Chaplain of Blockley (City Hospital) in May, 1913. Those who answered the call represented the Children of Mary of the Sacred Heart Convent, who have maintained a visiting committee at Blockley for the past forty years, the Almshouse Committee of the St. Vincent de Paul's Conference, and several women prominent in the St. Vincent's Aid, Ladies of Charity, and the Christian Mothers. It was agreed that sufficient resources were at hand to begin the work at once. With the Archbishop's approval, a most suitable and convenient property was secured, consisting of a colonial mansion, part of which was built in 1785, on the brow of a hill in an estate of twelve acres, skirted by Darby Creek. The land is part of a grant of 350 acres made to John Blunston, one of the Quaker settlers of Darby, by William Penn. It is of interest to note that it was also owned at one time by John Bartram, the botanist.

The place is well adapted to its present use. There the patients may enjoy the wholesome air and restful quiet of the country, while to reach it they are not put to the expense and trouble of a long journey. Its proximity to the Darby car line makes it easy of access from all sections of the city. One of the drawbacks of most convalescent homes is their too great distance from the people whom they are intended to benefit. On condition of an option to buy within a year, rental of this property was fixed at $50 a month. The first year's rent was very generously donated by Mr. M. P. Quinn. Through the untiring efforts of the Women's Auxiliary the sum of $2,400 was collected for repairs and general furnishings. The Men's Committee, agreeing to meet current expenses, collected about $2,700.

St. Francis' House was opened in June, 1913, when it possessed but fifteen beds. Mrs. Charles P. Mullin, who had done splendid work at Blockley, volunteered to serve as manager. The first patient was received June 30. The success of the undertaking was so rapid that now, at the end of only five years, there is accommodation for fifty persons. It is seldom that all the beds are not taken; indeed, usually there is a long waiting list. Beds have often to be improvised. Every effort is made to avoid the atmosphere of an institution and to have the surroundings as homelike as possible. There is the minimum amount of red tape, always so repugnant, for obtaining admittance. The House is open to all women, of what-

St. Francis Country House for Convalescents. The house where women enjoy every minute of a thorough convalescence.

ever nationality or creed, who are over the age of twelve years and in need of convalescent care.

Admissions are made through the Admissions Committee, which meets every Thursday. Any emergency case is acted upon by the resident manager in the interval between meetings. No charge is asked for or accepted, for the House is intended solely for those unable to pay for their care elsewhere. The religion of those entering is never inquired into. They are permitted to go to any church they may choose on Sunday and, if unable to walk, they are driven in the House automobile. There are few rules, and these only such regulations as are strictly necessary. Visitors are permitted every day. This broad ruling has been found very beneficial, as patients isolated from their friends are very subject to loneliness and depression, which seriously retards their recovery. Those physically fit are occasionally asked to help with some of the light work around the House, but after the dormitories are put in order the guests are practically free for the rest of the day. In the summer they may roam around the spacious grounds or rest peacefully under the cool shade of the trees. This is no small boon to those who are accustomed only to the hot, cramped conditions of our city's poorer sections. In the winter the glass-enclosed porch supplies a very comfortable sun parlor. This porch is furnished with a plentiful supply of couches and easy chairs. Down the center are tables for reading and writing,—the gift of the Women's Auxiliary. There are many books and magazines at hand. There is also a phonograph, for which the Juniors see that there are always fresh records. Nothing is lacking that is necessary for comfort and recreation.

Directed Occupation Aids

An occupational teacher instructs the guests in interesting work that distracts their thoughts from themselves. Mrs. Mullin, the superintendent, gives her services gratuitously. She takes a keen personal interest in the work, so that the patients are sure of kind, motherly attention at her hands. There are few paid workers at Darby, so that only about one-fifth of the running expense is for administration, which is a remarkable tribute to the generous charity of the administrators of St. Francis'. In consequence of this and the fact that the House has its own supply of vegetables, milk, and eggs, and the cost of each patient per month until recently has been only about $12 to $14. Now, however, owing to the increased price of everything, the average cost is a little more than $15.

This beauty spot, the picturesque Grotto of Our Lady, is formed by the rocks on the slope of ground back of the house. (Photo by Perry A. Wiley, Darby, Pa.)

Patients are permitted to remain until their strength is recovered. The average length of stay is about four weeks. There is a visiting physician with final decision on the discharge of patients.

A visiting committee follows up certain needy

patients after their discharge, and by a few helpful suggestions endeavors to make permanent the benefit derived by the patients' sojourn at Darby. In many cases this involves finding suitable employment for them.

The interest shown by patients in one another, even after they have left the House, has led to the adoption of yearly reunions on Labor Day. The great number who return on these days is significant of their gratitude and of their appreciation of the great good of St. Francis'.

For its support St. Francis' depends solely on charitable contributions. Through the splendid efforts of the Men's Committee, nearly $25,000 was raised in fifteen days to purchase the property. The members of the Women's Auxiliary and the Junior Aid are untiring in their labor for this institution. In addition to much other work, these ladies hold annually, on the grounds of the House, an alphabetical fair and market day. The Juniors have been very successful in the annual production of a play by which they have obtained large sums for the convalescents. In all, St. Francis' has received from various sources more than $150,000 in six years. Besides gifts of money, there are many individual contributions of food, clothing, and furnishings.

Many repairs and changes have had to be made in the House. New bathrooms and a new staircase were necessary. The rooms and halls had to be repaired and repainted, and a new heating system installed. A new road leading up to the House required to be made. These are only some of the more extensive improvements. For a time a mortgage of $10,000 was placed on the property, but was afterwards lifted by the late Michael Murphy, so that now the place is free of all debt. An additional $10,000 was bequeathed by Mr. Murphy to St. Francis'.

The success of St. Francis' since its inception has been phenomenal and is indicative of how greatly such an institution was needed. During its short career it has received about three thousand cases. These figures represent only the individuals who owe renewed life and vigor to the convalescent home. They give no idea of the many families that received a new start through the return to good health of an ailing mother or a bread-winning sister.

Front and side view of the original house of St. Francis' Country House for Convalescents. The setting of trees and the twelve acre grounds are in keeping with the dignity and placidity of the building.

Medical Service Provided

There are many happy features that characterize St. Francis' and seem to account for much of its popularity, chief among which are its nearness to the city, its strictly non-sectarian character, the ease with which admission is obtained, and its decidedly homelike atmosphere—the result of the absence of institutional rules. While St. Francis' has always a waiting list, investigation has shown other convalescent homes to be rarely filled to

Patients knitting for the soldiers.

Camping out on St. Francis' grounds.

their capacity. Social workers in Philadelphia say that the patients love to go to St. Francis', and it seems that the workers themselves are no less desirous to have them entered there

During 1917-1918 there were received 892 applications for admission to St. Francis' Convalescent House; 732 were approved and admitted; 103 were refused for various reasons, principally because of tuberculosis and epilepsy in the applicants; and 57 failed to come after being sent for. The majority of these applications were received from the hospitals, social service, and various other organizations in and about the city. By far the greatest number was received from the hospitals for patients recovering from operations or some serious malady, who were in need of the rest, food, air, and change of environment to be found at St. Francis'.

Poultry yard where the feathered flock contribute to the support of St. Francis' Country House convalescents.

A certain number of children accompany their mothers. During the year there were seventy-two mothers with babies under one year, ten mothers with twins under one year, and one mother with tripets under one year.

However, arrangements have been made with neighboring institutions for the care of infants and children during the period of convalescence of the mother, thus assuring the mother a quicker return to health. An excellent addition would be a building where all children could be cared for, which would relieve the mothers and give them the necessary added rest. It would at the same time centralize the care of the infants.

A large number of applications have been received for the admission of tuberculous patients, but the lack of accommodations for the care of this type of patient makes it necessary to refer them to special institutions. St. Francis' does not provide care for the incurably incapacitated, but receives any woman who through non-contagious disease, operation, or overwork is found in need of rest and change.

The 700 cases received in the first two years represented patients from fifty-five institutions,—thirty-two hospitals in Philadelphia, three hospitals out of town, and twenty other organizations, such as the Courts Aid Association and the charity organizations. The diagnosis were classified under 113 headings.

Patients received directly from their own homes numbered 132 in this two-year period. The record of benefits received shows 63 improved, 63 markedly improved or cured, and six not improved. Of the whole number received, 738,—which includes 60 mothers with babies,—364 were discharged as cured, 284 as improved, and 30 unimproved.

Valuable service has been rendered in cases complicated by nervous disorders. Provision is made for patients suffering from melancholia, neurasthenia, depressive mania, and even from dementia praecox. It is well recognized that one of the most important factors in the causation of insanity is strain, mental or physical. Many cases received at the Convalescent Home exem-

plify the curative effects of quiet and change of environment, and the relief of strain under the right régime. A number of these patients with reduced mental control have been restored to health. A few typical cases referred by the Social Service Division of the Philadelphia Department of Public Health and Charities are cited to show the constructive value of this phase of the work.

Jennie, age 45. Admitted to hospital, psychopathic ward, October 7, 1916. Discharged against advice; taken home by husband October 13, 1916. She had attempted suicide and was very depressed and melancholy. Second admission to hospital was on January 22, 1917; discharged February 13, 1917. *Diagnosis:* Nervous exhaustion, with excessive depression and confusion. Sent to St. Francis on day of discharge, leaving there after a stay of six weeks, in excellent condition, with a gain in weight of eighteen pounds. She has been keeping house ever since and doing very well. She had not been able to keep house for two and a half years prior to her stay at St. Francis.

Marie, age 53. Admitted to hospital, psychopathic ward, March 7, 1917. Discharged April 13, 1917. She refused convalescent care. Second admission May 26, 1917. She was in the insane department from June 14 to September 1, 1917. *Diagnosis:* Recurrent melancholia. She was sent to St. Francis on day of parole from hospital, where she remained for one month, gained twelve pounds in weight, and was entirely well when she returned to her home. Has been keeping house for her two brothers ever since. She became active in church and social affairs, which she had not been able to do for eighteen months prior to admission to the hospital.

Mary, age 39, married, mother of three sons. She was admitted to hospital July 6, 1916, discharged August 10, 1916. Had been addicted to drugs, paregoric, using a maximum of two pints per day, which she had been using for eight years. Was separated from husband and children and had been placed in homes. The woman was intelligent, but was an outcast from her family on account of her habit. She was sent to St. Francis August 10, 1916, remaining there for six weeks, at the end of which time she had gained in weight and strength, and had courage and desire to make a new start in life. She was very closely supervised by the Social Service Department, and in six months after her discharge from St. Francis was re-established in her own home, with her husband and children. She has not taken paregoric since, and states, furthermore, that she has never had any desire for it. Has written many letters to worker who sent her to St. Francis, claiming that it was due to the care and influence of the Home that she was able to get back to her old self again.

Cathrine, age 31. Single; stenographer and bookkeeper. Admitted to hospital November 8, 1917. Discharged January 3, 1918. *Diagnosis:* Toxic confusion. She had been sick for eight months and unable to work. She was sent in by her family, who insisted that she be kept in the hospital, and made every effort to have her committed to the insane hospital. Was sent to St. Francis in a fairly good condition, and remained there until April 11, 1918. During six weeks of this time she assisted the matron, and after she left secured a position of responsibility in a large business office where she has been since, earning an excellent salary. She has a deep feeling of gratitude toward the St. Francis Home.

Rosetta, age 50, widow. Sent to hospital from private insane hospital February 9, 1918. She had been there two years and had paid out for her care almost every cent of her income and principal. *Diagnosis:* Depressive mania. She remained in hospital until March 8, 1918, when she was sent to St. Francis Home, where she remained until April 16, 1918, at which time a position was secured for her. Since then she has been in excellent condition until the recent influenza epidemic, to which she fell a victim, and asked to be sent back to St. Francis to regain her strength.

Margaret, age 44, married, mother of two children. She was admitted to hospital, psychopathic ward, May 10, 1918. Discharged to St. Francis Home June 28, 1918. *Diagnosis:* Melancholia. Was in fair condition when she left the hospital. She remained at St. Francis for one month, gained in weight, and was in fine physical condition, with a clear mentality when she returned to her family. She has been keeping house and has remained in an excellent condition.

Margaret, age 34. Mother of three children. She was admitted to the hospital, psychopathic ward, July 14, 1917. *Diagnosis:* Toxic psychosis. Discharged to St. Francis Home August 3, 1917, at which time she weighed only eighty-nine pounds. On leaving St. Francis after a stay of two months, she weighed 123 pounds. Her mental condition having entirely cleared up, she returned to husband and family. She has been keeping house and has continued in excellent condition.

During the war the House was accepted by the Government for the use of convalescent sailors and marines, one hundred beds being provided. At this time the adjoining estate of twelve acres, with a beautiful country house with all its appurtenances, had been made ready for the soldiers.

The service of St. Francis to the country during the World War was formally acknowledged by W. C. Braisted, surgeon general of the United States Navy, in the following letter, written under date of December 15, 1919:

"The Bureau has had official reports from the commanding officer of the Naval Base Hospital of the services rendered by your hospital during the World War, and of the great assistance afforded by your staff, including doctors, nurses, and employees, in the case of the sick and injured officers and enlisted men of the Navy and the Marine Corps.

"The period during which this assistance was rendered covered not only the active period of the war, but extended beyond the date of the signing of the armistice; the help given was of such a character as to indicate a high standard of efficiency throughout your institution, both as to personnel and equipment; and the arduous duties performed so cheerfully make the loyalty and patriotism of all concerned.

"With a full appreciation of the valuable aid rendered in meeting that part of the war situation which fell to the lot of the Medical Department of the Navy, the Bureau desires to extend to you its sincere thanks for your assistance."

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L. HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

STUDIES IN ARTHRITIS*

PEMBERTON and his co-workers in the Army Hospital at Lakewood had an unusual opportunity of making an intensive investigation of the problem of chronic arthritis as presented by four hundred cases in soldiers. The results of these investigations are now appearing. Sixty-four per cent had arthritis only; 28 per cent had a combination of arthritis and myositis; 5.5 per cent had myositis only; 1.75 per cent had neuritis. The precipitating factors include 58 per cent due to exposure; 8.25 per cent due to dysentery; and a gradually diminishing percentage due to injury and other causes. Approximately 35 per cent of all the cases had had previous attacks of "rheumatism," in contrast to a percentage of only seven in non-arthritic army patients. The knee, ankle, hip, and shoulder were the most common sites of involvement. Nearly 75 per cent showed demonstrable surgical foci of infection, 52 per cent of the entire series being in the tonsils, while 33 per cent showed a dental focus. However, the relationship of these foci to the arthritis must not be accepted as causal. The etiological aspect of exposure to cold and wet is so pronounced as to leave little doubt concerning the cause and effect relationship. The number of cases resulting from hiking and other physical demands of the training is very small. One most interesting point brought out by Pemberton is that even in the presence of demonstrable foci of infection 46 per cent of their arthritic cases recovered without removal of the focus.

Metabolic studies were made with the Tissot calorimeter. The figures obtained for basal metabolism in most instances did not vary from the accepted normal standards. The nitrogen, urea, carbon dioxid combining power of the blood, calcium of the circulating blood, total fat and cholesterol of the fasting blood were well within normal limits. The renal function as tested by the Mosenthal diet shows no marked variations, although Pemberton thinks that a very slight lag in the elimination of water, nitrogen, and salt is indicated by the results of his investigations.

Pemberton for sometime has claimed that in chronic arthritis there is present a diminished tolerance for glucose, easily demonstrable by the test of feeding one hundred grams of glucose and obtaining the blood sugar curve at one-half hour intervals. In the series under discussion Pemberton was able to verify his previous observations, and concludes that diminished sugar tolerance may stand in some relation to inflammatory processes at large. This lowered tolerance seems to be more common than has been appreciated. In view of the demonstrated relation of focal infection to sugar tolerance, "in view of the fre-

*Studies on Arthritis in the Army, Based on Four Hundred Cases. I. Preamble and Statistical Analysis. By Pemberton, Ralph, M.D., and Robertson, J. W., M.D., Arch. Int. Med., 1920, xxv, 231. II. Observations on the Basal Metabolism. By Pemberton, Ralph, M.D., and Tompkins, Edna H., Arch. Int. Med., 1920, xxv, 241. III. Studies on the Nitrogen, Urea, Carbon Dioxid Combining Power, Calcium, Total Fat and Cholesterol of the Fasting Blood, Renal Function, Blood Sugar and Sugar Tolerance. By Pemberton, Ralph, M. D., and Foster, Goodwin L.

quency of foci in arthritis and at large; in view of the frequency of arthritis as a disease and the frequency with which it is accompanied by a lowered sugar tolerance, it seems necessary to modify the view which ascribes to disturbance of thyroid function, next to disease of the pancreas, the most common cause of altered carbohydrate tolerance as measured by this test." This view is not shared by many workers in carbohydrate metabolism. EDITOR.

THE LESION OF RHEUMATIC FEVER

A RECENT article by Jacki[1] calls attention to the specific lesion of acute rheumatic fever. The submiliary myocardial bodies, known as Aschoff bodies, have been found in a large number of cases of recent and old cases of acute rheumatic fever and chorea.

Jacki found these lesions not only in the heart but also in the *galea aponeurotica* of a case in a sixteen year old girl who had had several attacks of chorea and also one attack of acute rheumatic fever. The girl died of heart failure. This is believed to be the second case where Aschoff bodies have also been found in the *galea aponeurotica*.

It is believed that the Aschoff bodies in the heart serve as a differentiation which identifies at autopsy cases of chorea and acute rheumatic fever. It is believed that more knowledge of the etiology of these two diseases will be obtained only when this lesion is used to differentiate acute rheumatic fever from other symptom complexes which often resemble it. W. T.

BACILLI FROM HUMAN TUBERCULOSIS

THIS painstaking work of Griffith[1] gives valuable information about the source of tubercle bacilli in human tuberculosis.

It has been recognized for a number of years that cow's milk, including cream, butter, and cheese, are possible sources of human tuberculosis. We also know that a fairly large percentage of infections occur with bovine types of tubercle bacilli. Much confusion, however, has arisen from the fact that some investigators, evidently on insufficient evidence, have claimed that an overwhelming proportion of all varieties of tuberculosis is caused by the bovine type. This has been considered by them to be especially true in infants and young children. It is believed that to a great extent these opinions have been formed by mental association of milk diet and tuberculosis in children. These opinions are borne out to a certain extent by Griffith's results, but not to the degree usually stated. He analyzed 1,088 cases of tuberculosis, of which 20.7 per cent showed bovine infection.

Further analysis, taken from his tables, gives the following:

Number of Cases	Age Groups	Bovine Infection
221	0 to 5 years	37.55 per cent
312	5 to 10 years	29.45 per cent
150	10 to 16 years	14.66 per cent
384	16 and over	6.25 per cent

It is seen that 37.55 per cent in children in the first age group is the largest proportion of bovine infections found. The rapid falling off of this percentage even by the time ten years of age is reached demonstrates that most cases of adult tuberculosis can not be attributed to the lighting up of a latent tuberculosis acquired in childhood from milk. This is further substantiated by the figures for bone and joint tuberculosis which approximate those for all forms of tuberculosis.

Griffith's article should be read in the original. W. T.

INJECTIONS OF AN ACTIVE DEPOSIT OF RADIUM EMANATION

THIS is evidently the first of a series of studies of this problem.

The "active deposit" of radium emanation in normal salt solution was injected intravenously and subcutaneously in the white rat. This was found to be toxic and above a certain dose resulted in the animal's death in a few days. One of the prominent symptoms was enteritis.

Marked degenerative changes were caused in the liver, cloudy swelling and "erosion" of renal cells in the kidneys, together with hemorrhage and congestion in many other organs. Probably the most important and interesting lesion is destruction of the cells of the bone marrow and replacement by blood. This is of interest since it is known that over exposure of patients to radium results in changes in the blood, such as marked reduction in the lymphocytes. Bagg states that he has investigated the changes in the blood after injections similar to those described in this article and will report on this work later.

It is interesting that only slight changes occurred in the subcutaneous tissue at the site of subcutaneous injections. It is hoped that the effect of intravenous injections of "active deposit" of radium emanations on malignant tumors transplanted into rats will be investigated. W. T.

1. Jacki, Elizabeth: Concerning Rheumatic Nodules in the Galea Aponeurotica and Their Histological Relationship (Uberenstimmung) to the Myocardial Nodules of Aschoff, Frankfurter Ztschr. f. Path., 1919, xxii, 82.

1. Griffith, A. Stanley: The Bacteriological Characteristics of Tubercle Bacilli from Different Kinds of Human Tuberculosis, Jour. of Path. and Bact., 1920, xxiii, 129.

2. Bagg, H. J.: Jour. Cancer Research, 1920, v, 1.

EPIDEMIC ENCEPHALITIS—A CRITICAL REVIEW

By JAMES M. STANTON, M.D., Washington University Medical School, St. Louis, Mo.

As a result of the appearance of numerous cases of a central nervous system disease of a previously unusual type, which has been variously designated as epidemic encephalitis, lethargic encephalitis, epidemic stupor, and infectious ophthalmoplegia, there has come into existence a considerable mass of literature. This condition immediately became of great interest, both from the point of view of the public and of the medical profession, because of two factors, one the uncommonness of a very frequent sign—the somnolence—the other because of its possible relation to the type of food poisoning known as botulism. At the present moment the interest in the condition is largely narrowed to a consideration of the possible etiologic agent.

Considerable difficulty arises in defining this condition because of the unknown nature of the etiologic agent and because of the variability of the clinical picture. Perhaps the best definition is that of Sainton, as mentioned by Winner,[1] who speaks of it as "a toxic infectious epidemic syndrome characterized clinically by a triad of symptoms consisting of somnolence, palsies of the motor nerves of the eyeball, and a febrile state: and anatomically by a more or less diffuse encephalitis situated chiefly in the gray matter of the midbrain." In addition to the oculomotor paralyses there is frequently a ptosis of some degree and very commonly a mask facies together with generalized spasticity. It is remarkable to what a degree certain of these cases resemble the picture seen in the Parkinson disease.

A Short Historical Note

Buzzard[2] says that there is no reason to assume that this is a new disease. Epidemics of a more or less vague type, but presenting much of the picture of the present one, are reported as having occurred in 1718, 1745, 1768, and in 1802. Crookshank[3] says that Récamier in 1837 observed the apoplectic form of this disease and that Gintrac, of Bordeaux, described in the clearest manner "epidemic stupor" in children. In 1889 and 1890 the disease, "Nona," characterized by somnolence and paralyses of the cranial nerves, appeared in Italy, Hungary, Germany, and France. In Austria, and particularly in Vienna during the winter of 1916-1917, a recrudescence of this disease occurred, and von Economo gave it the name "Encephalitis Lethargica." In 1917 an outbreak occurred in Australia, it being referred to there as the "mysterious disease." Early in 1918 an epidemic of the same condition appeared in France. In the recent epidemic the disease first appeared in England in February, 1918. The English cases were first brought to attention by Harris[4] and Hall[5] with reports of ophthalmoplegia. Bassoe,[6] at a discussion before the Institute of Medicine of Chicago, first mentioned the occurrence of the disease in the United States.

An exact idea of the general prevalence of this disease is difficult to form. There is no necessity of saying that there existed many cases which were never identified as being examples of this condition. In regard to its incidence in the United States there is the added difficulty of the fact that the disease was and is still reportable only in certain localities. That it was quite prevalent is evinced by the report of a number of neurologists who have each individually seen from fifty to one hundred fifty cases. The disease has been relatively widespread in all of the countries in which it has appeared, being not at all confined to the main centers of population. Regarding the seasonal incidence there has been a certain uniformity in ascribing its prevalence as being largely confined to the months between April and October. The months of maximum prevalence of this disease are, therefore, not the months of maximum prevalence of acute poliomyelitis.

From the following tabulation an approximation of the incidence as to sex is arrived at, the proportion of the total cases in this series being 61 per cent males, and 39 per cent females.

Author	Male	Female
McNeal[7]	33	7
Crookshank[8]	77	50
Hall[9]	7	9
Vaidya[10]	15	3
Winner[1]	20	21
Hershfield[11]	7	8
Total	159	98

1. Winner, S. S.: Epidemic Encephalitis, Illinois Med. Jour., 1919, xxxvi, 126.
2. Buzzard, E. F.: An Address on Lethargic Encephalitis, Lancet, London, 1918, ii, 835.
3. Crookshank, F. G.: Epidemic Encephalo-Myelitis and Influenza, Lancet, London, 1919, i, 79.
4. Harris, W.: Acute Infectious Ophthalmoplegia or Botulism, Lancet, London, 1918, i, 568.
5. Hall, A. J.: Toxic Ophthalmoplegia, Lancet, London, 1918, i, 568.
6. Bassoe, P.: Symposium on Influenza before Institute of Medicine of Chicago, Jour. Am. Med. Assn., 1919, lxxii, 677.
7. McNeal, J. B.: Lethargic Encephalitis, Arch. Neurol. and Psychiat., 1919, ii, 271.
8. Hall, A. J.: Epidemic Encephalitis, Brit. Med. Jour., 1918, ii, 461.
9. Vaidya, S. K.: Investigation of Cases of Epidemic Encephalitis, Lancet, London, 1918, ii, 322.
10. Hershfield, A. C.: Encephalitis Lethargica in Chicago, Illinois Med. Jour., 1919, xxxvi, 27.
11. Tilney, F., and Riley, H. A.: Epidemic Encephilitis, Neurol. Bull., 1919, ii, 106.
12. Rice-Oxley, A. J.: Case of Lethargic Encephalitis, Lancet, London, 1918, ii, 15.

A compilation of cases showing the age incidence taken from the reports of McNeal,[7] Hall,[8] Vaidy,[9] Winner,[1] and Hershfield[10] is given.

Age of Patients	Number
Below 1 year	4
1 to 5 years	22
5 to 10 years	17
10 to 20 years	15
20 to 30 years	22
30 to 40 years	14
Above 40 years	37
Total	131

The youngest patient affected was one of the age of four weeks reported by Tilney and Riley;[11] the oldest was a patient seventy-four years old and was reported by Rice-Oxley.[12]

In view of the lack of knowledge of the causative organism of this disease, our ideas regarding its immunity are practically nil. In a study of the major part of the literature of this condition no account was found of any individual having suffered twice from this condition. Information of some possible value might be obtained in regard to the question of immunity, if a series of cases in which the use of serum of cured cases had been tried were at hand. No reports of this method of therapy have been encountered.

Nature of the Organism

At the very onset of the epidemic in England the question as to whether the condition was due to some type of food poisoning, particularly the type known as botulism, was earnestly discussed. In a very short space of time this possibility was disproved, both by the history of the cases and by the inability to find either the specific bacillus or the characteristic lesions produced by this bacillus. The view that the causative factor is of the nature of a food poisoning would seem to be rendered untenable or at least quite unlikely by a case similar to that reported by Batten and Still,[13] in which the disease developed in an infant, entirely breast fed, the mother of the infant being quite well and not having either this disease or influenza.

Whether or not there exists any causal relation between influenza and this disease is extremely difficult to decide. As has been pointed out by Abrahamson,[14] while the incidence of influenza is at its height there seem to be very few cases of lethargic encephalitis that manifest themselves. Likewise, when the encephalitis cases are increasing in frequency there are relatively few cases of influenza. This observation seems to be particularly well borne out as regards the occurrence of cases within the last six months. In Winner's[1] series of forty-one cases, eighteen gave a history of having had influenza. In Hershfield's[10] series of fifteen cases, only three gave a history of influenza. One fact, at least, stands out in reviewing the case reports, and that is that it is far from uncommon to have the patient deny having had any condition that remotely resembles an influenza attack. It should not be lost sight of that the vague complaints of an influenza-like nature that frequently precede by four to seven days the onset of somnolence, or cranial nerve paralyses, may well represent the prodromal symptoms of the disease rather than a preceding influenza.

Far more difficulty is encountered concerning the relationship or lack of relationship between acute poliomyelitis and this "new disease," on which point there seems to be a wide range of opinion. A few hold to the belief that these cases represent, as Crookshank[15] says, "only part of a spectrum of which one end is constituted by 'infantile paralysis' and the other by 'acute delirious mania' and various forms of 'encephalitis'." The report of the British Local Government Board,[16] working in conjunction with the Medical Research Committee, takes a more definite stand in this matter. They state the results of the epidemiological survey were striking "and permitted no ambiguity of inference." Their results show that epidemic encephalitis is not a form of acute poliomyelitis, and that it is a "disease *sui generis* anatomically, and is clinically distinct from analogous affections." It is true, however, that the clinical differences between acute poliomyelitis and this new disease are mainly quantitative rather than qualitative. There is one clinical syndrome of very great frequency which is certainly very rarely seen in poliomyelitis, that is the Parkinson syndrome.

The results of animal experimentation have been contradictory. Flexner is reported by McNeal[7] as having had inconclusive results. Many competent workers have been unable to produce any disease by animal inoculation. The findings of Strauss, Hirschfield[17] and Loewe[18] are of much interest. Their work has tended to show the presence of a filterable virus in the nasopharyngeal mucous membrane of fatal cases of this disease. They report that this virus is capable of produc-

13. Batten, F. E., and Still, H.: Epidemic Stupor in Children, Lancet, London, 1918, i, 636.
14. Abrahamson, I.: Epidemic Polioencephalitis, New York Med. Jour., 1919, cx, 17.
15. Crookshank, F. G.: Discussion on Epidemic Encephalitis, Proc. Roy. Soc. Med. (Sec. of Med.), 1918, xii, 1.
16. Report of an Inquiry into an Obscure Disease, Encephalitis Lethargica, Local Government Board Report on Public Health and Medical Subjects, n. s. 121, England.
17. Strauss, I., Hirshfield, S., and Loewe, L.: Studies in Encephalitis Lethargica, New York Med. Jour., 1918, cix, 772.
18. Loewe, L., Hirshfield, S., and Strauss, I.: Studies in Encephalitis Lethargica, Jour. Infect. Dis., 1919, xxv, 378.
19. Loewe, L., and Strauss, I.: Etiology of Encephalitis Lethargica-Preliminary Note, Jour. Am. Med. Assn., 1919, lxxiii, 1056.
20. James, S. P., Lieut. Col.: Proc. Roy. Soc. Med. (Sec. of Med.), Discussion on Epidemic Encephalities, 1918, xii, 8.

ing, in monkeys and in rabbits, lesions similar to those found in the human brain. Loewe and Strauss[19] reported that they have been able, by the Noguchi method, to grow an organism from cases of this disease. Their organism resembles that described by Flexner and Noguchi in poliomyelitis. The injection of their organism into animals causes lesions similar to those seen in man.

Modes of Conveyance

A very clear working idea of the modes of conveyance of this disease and of the factors controlling its clinical occurrence is given by Lieut. Col. James,[20] who states "encephalitis lethargica is one of a group of diseases in which, as in cerebrospinal fever and acute poliomyelitis, the pathogenic organism is much more generally present than the clinical evidence implies. Cerebrospinal fever arises in one of two ways: (1) as a result of a breakdown in the immunity to the effects of the virus which the individual who harbored it had up to that time enjoyed; (2) as the result of a non-immune person becoming infected with a strain of the virus which has attained the degree of pathogenic action described as specific. During severe epidemics . . . cases of cerebrospinal fever are arising in both these ways, but during inter-epidemic and mild epidemic periods it is seldom or never possible to obtain evidence that the illness is infectious. At such times cases of the disease are always scattered sporadically and they cannot be traced to any known source of infection, except the patient himself. This is the view that best explains the irregular widespread, sporadic distribution of encephalitis lethargica." It would therefore seem that the presence of the disease represents a breakdown of personal immunity, due to one or both of the following factors: increased virulence of the organisms, or lowered resistance of the tissues affected.

Very few observations are on record of a person who has been in contact with a definite case of this disease developing it. Schnoor[21] mentions the case of a physician developing the disease about four weeks after being in attendance upon a patient suffering with it.

Gross Changes.—During life the brains of a number of these cases have been seen. This is particularly so with Buzzard's[2] series of cases. A number of his cases developed signs of increased intracranial pressure and were subjected to a decompression operation. At operation there was seen a marked meningeal and cortical hyperemia, together with a very definite thrombosis of certain of the cortical vessels. The accounts of the postmortem macroscopic findings are somewhat at variance, especially concerning involvement or lack of involvement of the cortex and meninges. The findings upon section are well described by Mott,[22] who, in speaking of the work of Marienesco, says that disseminated miliary hemorrhages were seen in the region of the floor of the fourth ventricle, the aqueduct of Sylvius and even about the third ventricle, as well as in the posterior parts of the pons and peduncles. Of the cortex he says that except for some congestion of the vessels of the leptomeninges there are no macroscopic or microscopic lesions. It is of interest to recall that the region of maximum density of the hemorrhages in these cases is the region that has long been recognized as being especially vulnerable to toxic and bacterial agents, as, for example, in the hemorrhagic polioencephalitis of Wernicke. Not infrequently there are no pathologic findings upon examination in the gross.

Microscopic Changes.—Bassoe and Hassin[23] noted in their examinations that the pia appeared infiltrated and frequently showed distended meshes containing hyperemic vessels, these changes indicating a mild leptomeningitis. The chief features of the microscopic pathology as summarized by Buzzard[2] are: (1) Perivascular infiltration mainly with small, round cells. (2) Small capillary hemorrhages which suggest a gradual oozing of blood through the damaged walls of small veins and capillaries. (3) Thrombosis of small and middle size vessels in different stages of organization. (4) Ischemic softenings presenting the appearance of the hemorrhagic infarctions which are seen in other organs. (5) Subarachnoid hemorrhages and cellular infiltrations of the leptomeninges. (6) General neurogliar proliferation. (7) Changes in nerve cells, in some places showing chromatolysis and in others a process resembling that of coagulation necrosis.

According to Bassoe and Hassin, these piaarachnoid changes are well marked and occur about every part of the brain, being particularly well marked about the base of the cerebellum and not infrequently involving the contiguous parenchyma. Besides the perivascular infiltrations there are other very evident changes in the cortex, chiefly of the nature of satellitosis, chromatolysis, and neuronophagia. The cortical archi-

21. Schnoor, E. W.: Encephalitis Lethargica, Jour. Michigan Med. Soc., 1919, xviii, 141.
22. Mott, F. W.: Discussion on Epidemic Encephalitis, Proc. Roy. Soc. Med. (Sec. of Med.), 1918, xii, 1.
23. Bassoe, P., and Hassin, G. B.: A Contribution to the Histopathology of Epidemic (Lethargic) Encephalitis, Arch. Neurol. and Psychiat., 1919, ii, 24.
24. Calhoun, H. C.: Histopathology of the Brain and Spinal Cord in a Case Presenting a Post-Influenzal Lethargic Encephalitis Syndrome, Arch. Neurol. and Psychiat., 1920, iii, 1.
25. Marienesco, G.: Local Government Board Report on Public Health and Medical Subjects, Report of an Inquiry into an Obscure Disease, Encephalitis Lethargica, n. s. 121, England.
26. Von Economo, C.: Encephalitis Lethargica, Wien. klin. Wchnschr. 1918, xxxi, 850.

tectonic system remains practically unaltered. The subcortical fibers remain likewise unaffected. The case of Calhoun[24] showed definite spinal cord changes of the nature of an acute diffuse infiltrative myelitis, associated with a thickening and infiltration of the pia-arachnoid. The cord changes found by her bore a definite relation to the vessels.

There is a certain conformity of opinion regarding the absence of new vessel formation. Epitheloid cells, of either vascular or glial origin, are infrequently seen. The type and variety of infiltrative cell varies. Calhoun speaks of the slight vascular infiltration of the vessel walls and the presence of masses of homogeneous bodies such as were previously reported in cases of the trypanosomal sleeping sickness. Bassoe and Hassin mention lymphocytes, plasma cells, polyblasts, fibroblasts, and rod cells. Marienesco[25] reports the presence of plasma cells and some lymphocytes. Von Economo[26] mentions the adventitial sheaths as being crowded with lymphocytes, leukocytes, and plasma cells.

Uniformity of nerve cell change is present to a marked degree throughout the brain and spinal cord. Chromatolysis and the axonal reaction are found in the ganglion cells. Satellitosis is also usually marked. Marienesco mentions changes in the cerebellar Purkinje cells like those seen in fatigue. A well defined proliferation of the ependymal cells about the central canal of the cord, together with some associated glial reaction, has been a rather uniform finding. All attempts to find organisms within the central nervous system of these cases, by staining methods, have been fruitless.

The Symptoms Noted

The period of incubation is unknown. As a rule the symptoms come on insidiously and it is impossible definitely to fix the time of onset. However, in a certain few cases there is an acute onset, usually with either apoplectic or psychotic manifestations. These last are among the unusual types, however. More frequently there is at the onset a vague feeling of lassitude, vague pains over the body, headache, and inaptitude for work. This indefinite combination of symptoms, especially if occurring at a time when influenza is epidemic, frequently results in the condition being called "influenza." At or about this time, or even after a few days' interval of seeming return to normal health, the lassitude becomes more marked, and the patient's condition is better expressed as lethargic, suporous or somnolent.

These terms represent the facial aspect of the disease, rather than an expression of the actual intellectual potentialities of the patient. It would seem that this facies is the result of an actual partial facial nerve paralysis, together with a third nerve paralysis of varying degree. It may perhaps represent instead a bilateral facial spasticity. There usually develops at this stage, more or less rapidly, various cranial nerve paralyses. The cranial nerves most frequently affected are the oculomotor nerves (third, fourth, and sixth), the seventh, and the twelfth. There may be, and it is not unusual to find, singly or together, many of the cranial nerves involved. Not infrequently there is complaint of headache of varying degree of intensity. An increase of temperature to, usually, 100° to 103° now appears. The pulse is usually in proportion. Occasionally the pyrexia is more marked, and may even reach 106° or higher. Delirium is not infrequent, especially as a nocturnal manifestation.

These seem to be two or more distinct courses that the disease may now take. Cases of the first or acute type grow rapidly worse and terminate fatally usually at the end of the second or early in the third week. The cases of the other type, the subacute or chronic, run a much slower course, having commonly a duration of eight or ten weeks and not infrequently lasting three or four months.

The blood has been carefully investigated by Vaidya,[9] who in a series of eighteen cases found the leukocyte count to vary between 3,600 and 14,000, the average count being about 8,400. Hershfield, in a series of eleven cases, found an average count of 14,000 leukocytes. There are usually no profound changes in either red cells or hemoglobin, although during convalescence there is not infrequently an anemia of some degree.

Examination of the cerebrospinal fluid has shown no constant picture. A moderate number of these cases have shown a normal fluid. Whether a normal fluid exists throughout the entire course of certain of these cases is difficult to say, but it would not seem unlikely. The greater part of the cases show on puncture a fluid under somewhat increased pressure. The cell count is ordinarily between fifteen and fifty, and mononuclear cells usually predominate. Tests for protein increase are usually positive. The Wassermann test, on uncomplicated cases, is negative. The colloidal gold test has given widely varying results. Some of the cases have shown a typical paretic type of reaction. More commonly the curve is of the midzone, so-called luetic, type. There has been a certain uniformity in the inability to find organisms in the fluid.

The pulse presents no special character. It is increased in rapidity, usually in proportion to the height of the fever. The blood pressure usually

shows no marked change. In one of my cases it rapidly rose, during a period of four days, from 120 to 180 mm., being lowered on two occasions from twenty to thirty points by lumbar puncture. This was associated with an increasing optic neuritis and was looked upon as a manifestation due to increasing intracranial pressure.

A number of these cases have developed skin eruptions. Schnoor reports a case with a miliarial eruption. Buzzard[27] mentions a case with a papular rash over the forearms, buttocks, and legs; another with a rash like that of scarlet fever; and still another with morbilliform rash over the chest, abdomen, and arms. A very common and annoying symptom in many of these cases has been recurrent drenching sweats. Drooling has also not been infrequent. Retention of urine has been met with repeatedly.

Morbid Anatomy

Of the signs or symptoms referable to the olfactory nerve little or no mention is made. Of the optic nerve, some diminution of vision has been noted. Perimetric studies have not been made on many of these cases. Fundus changes of the nature of an optic neuritis, and even amounting to a choked disc, have been found not infrequently. The third, fourth, and sixth nerves have been the most frequently and uniformly affected. Their affection in the form of a diplopia has been noted by a predominating majority of the patients. The particular muscle or combination of muscles affected has varied. In some of the cases there has been a complete *ophthalmoplegia externa*. Ptosis, either unilateral or bilateral, has been rather uniform. In general it may be said that this ptosis has been of the partial rather than of the complete type. Pupillary irregularity, less frequently an inequality, has been noted in about 25 per cent of the cases. The reaction to light has been uniformly non-affected. The reaction to accommodation is frequently poor. Nystagmus of the horizontal type has been observed very frequently.

Involvement of the fifth nerve, either in its motor or sensory portion, has been distinctly uncommon. Abnormalities of the facial innervation, in the form of the Parkinsonian facies have been extremely common, in fact this symptom has shown itself in almost all of the cases. Well marked and typical cases of facial paralyses have been observed in some series with a frequency of almost one in five. Deafness of rapid onset has been encountered but infrequently. Vertigo, particularly tinnitus, has been more common.

Paralyses of the palate and of the vocal cords have been infrequently seen. Speech disturbance of the nature of dysarthria has been fairly common. Inability to protrude the tongue, and difficulty or inability to swallow have been frequently annoying features. There has been little evidence of vagus involvement either by paralysis of the larynx or by cardiac disturbance.

Among the common features of an involvement of the motor system we find the more or less generalized spasticity which occurs in practically all cases at some stages of the disease. Isolated paralyses of the different limbs have been mentioned not infrequently in the various case reports. These paralyses are usually associated with increased tendon reflexes and with the pathologic toe sign indicative of a pyramidal tract lesion. In some of these cases pain upon passive motion of the spastic limbs is very marked. Evidence of extra-pyramidal tract involvement is not infrequent. As evidence of this are the various complete and incomplete Parkinsonian syndromes. Howe[28] reports a case showing the picture of the thalamic syndrome. Tremors of various kinds, particularly of the fine, moderately rapid, non-intentional type, have been frequent.

Certain of these cases, particularly at the time of onset, have presented the picture of a meningitis, showing marked cervical rigidity, together with the Kernig sign. Ankle clonus with no definite sign of paralysis has been met with now and then. Various sensory disturbances have been found associated with this disease. These sensory signs are usually associated with more or less mild paralyses of the flaccid variety. These changes are to be looked upon as the expression of a peripheral neuritis which may be either toxic or infectious in nature. These peripheral neuritides are frequently confined to but a single nerve, as, for example, a unilateral ulnar neuritis.

The Presence of Complications

Fortunately, the greater proportion of these cases go on to recovery without any complication or residual symptoms developing. Hemorrhage into the vitreous has been reported a few times. A not infrequent and very distressing thing has been the late development of involuntary movements affecting the extremities, tongue, etc. These movements usually show a tendency to clear. Various mental conditions, such as a depressed state, apathy, and indifference to the surroundings, have not been unusual. A post-encephalitic amentia seems to have been of rather infrequent occurrence. There is little mention of epileptic seizures amongst the sequelae of this condition, although they are not infrequent during the acute stage of the disease. Among the fatal cases, terminal conditions of pneumonia or of speticemia are, as a

27. Buzzard, E. F.: Lethargic Encephalitis, Proc. Roy. Soc. Med. (Sec. Neurol.), 1918, xii, 56.
28. Howe, H. S.: The Thalmic Syndrome in Encephalitis Lethargica, Neurol. Bull., 1919, ii, 190.

matter of course, very frequently encountered.

Cases of this disease appear in many different forms. In general they may be grouped from one of two standpoints, one from the standpoint of the clinical picture produced, the other from the standpoint of localization of the point of maximum severity of the process within the nervous system. Tilney and Riley[11] have proposed a useful grouping from the symptomatic standpoint. They have recognized the following types: (1) The lethargic type. (2) The cataleptic type. (3) The paralysis agitans type. (4) The polioencephalitic type. (5) The anterior poliomyelitic type. (6) The posterior poliomyelitic type. (7) The epilepto-maniacal type. (8) The acute psychotic type.

A ninth form, the infantile type, has been tentatively proposed by these authors. This grouping, while not permitting of an accurate classification of all cases met with, yet proves useful from the prognostic and other standpoints.

Points in Diagnosis

Several points are to be borne in mind: (1) Errors in diagnosis are inevitable, even under the most favorable conditions. (2) Spinal fluid examination is scarcely to be dispensed with. (3) This disease is extraordinarily variable in its manifestations. (4) Diagnosis must be made chiefly by exclusion. Perplexity in diagnosis arises chiefly in connection with the following diseases:

Tuberculous meningitis.—The marked pleocytosis of the spinal fluid, together with the presence of the tubercle bacillus, and the characteristic sulphosalicylic acid—mercuric chlorid precipitation ratio characteristic of this disease, can be made use of.

Cerebrospinal meningitis.—The presence here of the organism with its characteristic precipitin reaction should prove of ample value.

Cerebrospinal syphilis.—This probably will, in certain instances, offer the greatest difficulty of exclusion. The presence of a positive Wassermann reaction, together with the history, should be of particular value. A therapeutic test may prove of value at times.

Intracranial new growth.—For differentiation here one will have to depend upon the course of the disease, the presence of choked disc, other evidence of increased intracranial pressure, roentgenographic findings, localizing signs, and perhaps even upon an exploratory operation.

Hysteria.—This has frequently been the early diagnosis made in these cases. The presence of a history of previous hysterical manifestations, the presence of marked sensory disorders which are of a functional type, and the absence of any of the definite signs of organic nervous system will prove of value.

These in general are the diseases which one has most frequently to consider in dealing with a supposed case of epidemic encephalitis. It should be emphasized again that errors in diagnosis are inevitable in dealing with this disease.

Factors Affecting Prognosis

Concerning the outcome, perhaps nothing better can be said than to repeat the dictum of Buzzard:[2] "At present we can only say that some cases recover completely, others survive the acute stage but carry with them in after life permanent defects due to the morbid process, while a certain number die either from toxemia or hemorrhage in the acute illness or from some complication following it."

The exact mortality rate varies considerably. Winner reports the French rate at about 35 per cent, the English rate at about 25 per cent, and the Australian rate about 5 per cent. The mortality rate in the United States is very difficult to estimate. The figures at hand show a mortality of nearly 25 per cent, but this rate can obviously not be applied to the cases in general, because (1) the mild cases do not come to attention, and (2) there is no doubt a high percentage of inaccurate diagnosis. Probably 15 per cent would serve roughly to indicate the degree of mortality. It is especially the epilepto-maniacal and the acute psychotic types, together with those cases in which the burden of the affection falls upon the lower cranial nuclei and the respiratory center, which have the worst prognosis.

Details of Treatment

There are no specific measures at present at our command for the treatment of these cases. During the acute stages the patient should be kept in bed and some degree of isolation enforced. The treatment is essentially symptomatic. For the pyrexia, when it becomes marked, hydrotherapeutic measures are of the most value. The elimination should be carefully watched. In general it would seem wise to force fluids. Feeding should be frequent and in small quantities. At the first sign of difficulty in swallowing, nasal feeding should be resorted to. While this is being carried on a careful watch should be kept for signs of a developing acidosis.

Repeated lumbar punctures are perhaps useful, especially if there is evidence of cerebral edema. The symptomatology of this disease is so varied that it is obviously not possible to touch upon the more specific symptoms.

HEALTH AND INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

THE TUBED FLAP IN SKIN GRAFTING

THIS method was presented by Maj. H. D. Gillies,[1] R.A.M.C., at a meeting of the Clinical Congress of Surgeons in New York last fall. It has been tried out especially at Sidcup, England.

This device makes the skin of practically every part of the body available for repair work where it may be needed. The blood supply of the flap is well taken care of while the new circulation is being established. There are no raw surfaces as in the usual pedicle method, therefore the danger of infection is reduced.

The tubed pedicle flop in repair of facial burns. (Photograph by courtesy of Surgery, Gynecology and Obstetrics.)

These tubed pedicle flaps are prepared by making two parallel incisions about two inches apart, starting from the angle of the jaw or upper part of neck for a plastic on the face, and extending downward over the chest or back. These incisions are made through the skin down to the fascia. The strip thus formed is raised. Bleeding points are caught and ligated. The cut edges of the strip are then united with a fine silk suture in such a way that a tube is formed with the skin outside. The edges of the adjacent skin are undermined and brought together with tension sutures. Occasionally it may be necessary to use a Thiersch graft to close this secondary wound. Thus a tube is formed running from the angle of the jaw to the chest or back. The angle of the jaw is chosen as a base because of the vascularity of this region. About two weeks later at the lower end of the tube the flap which is ultimately to be transplanted is outlined by an incision extending down to the fascia. The bleeding points are ligated. This is done to shut off the circulation from the adjacent skin and to stimulate the formation of an increased blood supply coming through the tube.

About three weeks after the tube has been constructed and when healing is complete the outlined flap is raised and transplanted to its new position and sutured in place. The blood supply is taken care of through the tube. The progress of the new circulation in the transplanted flap can readily be tested by pinching the tube pedicle and then pressing on the flap and noting how soon the color returns after the pressure is released. When the flap is thoroughly healed and the new circulation well established, the pedicle is amputated.

The pedicle can be excised completely, can be "untubed" and returned to its original site, or can be used again either as a pedicle for a new flap which can be cut from its former base, or as a graft itself. If used as a graft it must be opened, the scar excised, and the central core of fibrous tissue which often forms must be removed. It can now be swung as a flap over the nose, or used as a new upper or lower lip. When used as a lip, it may be better not to "untube" it, but to use it as a flap with skin on both sides.

The caterpillar tubed flap is a tubed pedicle flap used when it is necessary to bring skin from a distant point. The flap is prepared as above described and is then planted close to the base of the tube. After healing, the former base of the tube is moved towards the area where the flap is wanted and, later, the flap is again moved up close to the new base. Thus by a series of implanta-

1. Gillies, Major H. D., R.A.M.C.,: Plastic Surgery of Facial Burns, Surg. Gynec. and Obst., xxx, 121.
2. Johnson, L. W., Lieutenant Commander, M.C., U.S.N.: Facial and Jaw Injuries, U. S. Nav. Med. Bull., xiv, No. 1, p. 8.
3. Dorrance, George M.: Use of Free Skin Grafts to Replace Loss of Mucous Membranes of Mouth and Nose, Ann. Surg., 1920, 3, lxxi, 360.

tions and re-implantations the skin flap is brought to the place where needed, the process resembling closely the movements of a caterpillar.

Major Gillies calls attention to some of the fascinating possibilities of the tube flap in the future, its use for the reconstruction of the penis, of a breast, or, with the skin inverted, as an artificial esophagus.

Points Regarding Technic of the Wolf and Thiersch Grafts.—The Wolf graft is best used over firm surfaces, such as the forehead and the bridge of the nose. The graft should be cut the exact size and shape needed. According to Gillies, it is wrong to cut it large and "allow for shrinkage."

The graft, when sutured into place, must be evently stretched and should be as taut as the surrounding skin. Pressure is applied over the graft by means of bandages or molds. The graft is pressed against the underlying tissue throughout the whole extent, thus preventing accumulations of blood or serum. The pressure is kept up from three to five days.

The Thiersch[1 2 3] grafts must also be kept in apposition to the granulating tissue. An expedient way of doing this is to make a mold of the area to be grafted out of dental composition. The grafts are laid over this mold with the raw surfaces uppermost. The mold is then pressed into place and firmly held for a week or ten days. When the mold is removed, the grafts will be adherent.

R. B. B.

STANDARDIZED SURGICAL METHODS IN INDUSTRY*

By C. D. SELBY, M.D., Toledo, Ohio

THIS conference is called in response to the impression, which is frequently met with among industrial physicians, that standard methods of surgical procedure are desirable in industrial dispensary practices. The objects of this conference are to determine (1) if such standards are desirable; if so, (2) of what shall they consist; and (3) what is the best means for securing their general adoption.

INDUSTRIAL MEDICAL SCIENCE

The primary motive of any association arises from the need of mutual suggestion, support, and the solidarity which results from common group interests.

Industrial physicians have come together to solve their mutual problems and industrial medicine has reached a period of organization which selects and disseminates the best practices of their best men.

It is through such discrimination and through cooperative research that industrial medicine will evolve as a science whose principles are so well defined as to form a guide in the specialty and a gauge of the quality of service it delivers.

All of us who are engaged in industrial practice, sooner or later and consciously or not, come to follow certain methods of procedure. We get into the habit of using a certain antiseptic or some one particular local application. We favor a special kind of dressing table. We prefer to have our equipment arranged in a certain way. In other words, we standardize.

This is apparently the expression of a natural inclination to form habits, which is a human tendency. Although industrial physicians, we are quite human in this respect. Some of us fall into habits of procedure, some of us imitate the methods of others, and a few devise their own after observation and study.

This last mentioned type are the leaders in industrial medicine and surgery and are known to us all; they have created the only standards that exist. The majority of us are of the second type; we are the imitators, and through our imitation of the examples set by the leaders has come the progress of industrial medicine to the position it now occupies.

In considering the essentiality of standards, these two points are then of prime importance: (1) We are creatures of habit, and in our practice of industrial medicine our natural inclination is to standardize. (2) The majority of us are imitators, and if we do not have good standards held up as examples for us to follow we will accept others of less merit.

It may possibly be said that standards are expressions of exactness, that industrial medicine is not yet an exact science and is therefore incapable of standardization. Nevertheless, there are certain methods and means that have become sufficiently widespread in their adoption to warrant their being set up as minimum standards and used as the framework for the building up of a more exact science. Experience will suggest

*This article has been prepared for the purpose of suggesting lines of thought and for arousing discussion in a round table conference held during the annual meeting of the American Association of Industrial Physicians and Surgeons at New Orleans, April 26 and 27, 1920.

additions to and modifications of these standards from time to time, and thus the science will grow in exactness. The formulation of standards would therefore seem desirable.

(At this point the subject was opened for general discussion, and remarks were limited to the question, are standards of surgical methods desirable in industrial practice?

Standards of Minor Wound Treatment

To attempt to standardize the whole field of industrial surgery at one sitting of this conference would be quite impossible; the field is altogether too broad. Inasmuch as the minor injury is the most evident reason for the employment of industrial physicians, it seems appropriate that standards of minor wound treatment should receive first consideration. As a matter of fact, if the conference succeeds in devising standards of minor wound treatment in the short time allotted to it, a meritorious work will have been accomplished.

The following standards are presented, without argument, as a basis for discussion:

Fresh Wound

1. Remove devitalized tissue.
2. Cleanse with ether.
3. Spray or swab wound with iodin (2 per cent).
4. If cavities exist, pack them with dry gauze.
5. Dress dry.

Infected Wound

Treat all wounds as though infected the second, third and fourth days after injury is received.

1. Remove all scabs and loose skin.
2. Cleanse with ether.
3. Spray or swab with Dakin's solution of sodium hypochlorite.
4. If cavities exist, pack them with gauze saturated with Dakin's solution.
5. Dress moist.

Clean Wound

Treat all wounds as clean on the fifth day and after unless infected.

1. Spray or swab with neutral hydrocarbon oil containing iodin.
2. If cavities exist, pack them with dry gauze.
3. Dress dry.

Indolent Wound

1. Cleanse with ether.
2. Spray or swab with argyrol (5 per cent solution) or swab with balsam of Peru.
3. If cavities exist, pack them with dry gauze.
4. Dress dry, using slight pressure.

Burns

1. Apply hydrocarbon salve and dress dry.
2. This may later be varied with neutral hydrocarbon oil containing iodin.
3. Or treated as an indolent wound.

(At this point the standards of minor wound treatment were subjected to discussion.)

Standards of Equipment for Minor Wound Treatment

The equipment and materials used in the treatment of minor wounds are usually placed upon a dressing table where they may be easily reached by the physician or attendant. The following is a list of equipment and materials. It is offered, without comment, as a basis for discussion:

1. One five by six-inch white enameled jar containing 1-inch bandages.
2. One five by six-inch white enameled jar containing 2-inch bandages.
3. One five by six-inch white enameled jar containing sterile gauze.
4. One five by six-inch white enameled jar containing sterile cotton.
5. One five by six-inch white enameled jar containing sterile wooden tongue blades used as spatulas for the application of an ointment and applicators dipped with cotton swabs.
6. One three by four-inch white enameled jar containing a neutral hydrocarbon ointment.
7. One two by one-inch covered glass dish containing sterilized rubber tissue cut into strips for drainage purposes.
8. One four by seventeen-inch white enameled tray containing six splinter forceps, six sharp pointed scissors and six probes, all sterilized.
9. One medicine glass, containing a 5 per cent solution of carbolic acid, in which is kept a forceps for the removal of sterile instruments from the previously named tray.
10. One three by eight-inch white enameled tray in which are discarded used instruments and from which they are gathered from time to time for sterilization.
11. One hard rubber atomizer containing a 2 per cent solution of iodin.
12. One ordinary atomizer containing Dakin's solution, made fresh daily.
13. One atomizer containing a solution of iodin in hydrocarbon oil.
14. One atomizer containing benzin.
15. One can of ether.
16. One jar of solidified liniment.
17. Several one-fourth-inch strips of adhesive plaster one inch long.
18. One bandage shears.
19. A number of aluminum finger guards. These are very useful; they enable workmen who have lacerated finger tips to continue at work with a great deal more comfort than if unguarded.

(At this point the discussion on the standards of equipment for minor wound treatment was opened.)

There is a growing tendency in dispensary practice to group all of the furniture, fixtures, equipment, and materials essential to the treatment of minor wounds, the group being called a unit,—the minor dressing unit. The materials and equipment that might be regarded as essential to this unit have already been mentioned. The furniture

and the fixtures will now be offered for discussion and, as in the presentation of the others, without comment, except that as far as possible all should be finished in white.

1. One dressing table, twenty-one by forty-three inches in its top dimensions.
2. One stationary wash bowl.
3. One waste receptacle.
4. Chairs or stools for the patient and the physician.
5. One foot rest.
6. One arm rest.
7. One movable lamp with a flexible neck.

(The standards of the minor dressing unit were here opened for discussion.)

Means for Securing Adoption of Standards

The American Association of Industrial Physicians and Surgeons is the leading association in this field of practice. Its position of prominence confers upon it a very definite obligation, the obligation of leadership. It should endeavor at all times to enhance the knowledge peculiar to the field and provide means for the dissemination of that knowledge among the members. It should strive unceasingly to improve the ability of industrial physicians along practical lines.

The fixing of standards is a step in this direction; but to adopt standards without attempting to provide a means for their utilization would be futile. The great question before this conference is, then, how can a widespread adoption of standards be secured?

It is necessary first, however, that the Association determine that the standards it adopts are representative of the majority of opinion among its members and acceptable to them. This Conference does not have authority to do this; its authority does not extend beyond discussion of the matters that have already been brought before it. It can, however, consider ways and means for securing the official action of the Association. It can, for instance, recommend by resolution that the board of directors take such steps as may be necessary to formulate standards which will represent the majority of opinion.

(Discussion opened at this point.)

This Conference can recommend further, also by resolution, that the Association take some official action designed to secure the general adoption by its members of the standards as formulated. It can suggest, for instance, that adoption of the standards be made a requisite of membership; that is to say, no industrial physician can become a member until he shall have agreed to follow the standards of the Association. He should agree further not to modify the standards until the changes he may have in mind shall have been submitted to the Association for approval, together with his supporting arguments.

There may be disadvantages to this plan, but on the whole it would have the very decided advantage of (1) providing the members with good examples to follow in their practice, and of (2) providing a basis for study and a foundation for the development of industrial medicine as a science.[1]

VISUAL LOSSES OF ONE EYE

A standard for the estimation of compensation for partial or complete loss of vision is an unaccomplished necessity, says Dr. Frank Allport in the *Journal of the American Medical Association* of January 17, 1920. Such a table cannot be invariably equitable, but it would be a steadying foundation for judicial consideration. Ocular damages should be estimated on conditions prevailing at the time of litigation. Visual conditions should be estimated with glasses except after cataract operations. Snellen's test types Allport regards as erroneous and misleading as they were intended merely to serve as an international language interpreting ocular refraction and not to indicate visual insufficiencies.

Allport considers an individual industrially blind whose vision is insufficient for ordinary work. An answer to the question of what constitutes industrial blindness was arrived at by the Chicago Ophthalmological Society after consulting with many ophthalmologists, lawyers, industrial commissioners, and insurance managers, accepting that vision worse than 20/200 constitutes industrial blindness. On the basis of vision worse than 20/200 representing industrial blindness, or 100 per cent loss of vision, the Chicago Ophthalmological Society has graded down the percentages and compensations in the accompanying table.

Vision	Visual Efficiency Per Cent	Loss of Vision Per Cent
20/20	100	0.0
20/30	94.5	5.5
20/40	89.0	11.0
20/50	83.5	16.5
20/60	78.0	22.0
20/70	72.5	27.5
20/80	67.0	33.0
20/90	61.5	38.5
20/100	56.0	44.0
20/110	50.0	50.0
20/120	41.0	59.0
20/130	36.5	63.5
20/140	32.0	68.0
20/150	28.5	71.5
20/160	23.0	77.0
20/170	18.5	81.5
20/180	14.0	86.0
20/190	12.0	88.0
20/200	10.0	90.0

In closing the discussion of the desirability of arriving at standards of compensation equitable both to employee and employer it is suggested that, owing to the frequency of claims for personal injury, for ocular damage and all other accidents as well, perfunctory examinations should be discountenanced, and skillful examination should disclose the physical condition of employees before they are assigned to work.

1. Editor's Note:—As a result of the discussion following the reading of this paper a committee was appointed to make a study of the subject and report at the next annual meeting of the Association.

THE NECESSITY FOR AN INSTITUTE OF INDUSTRIAL HYGIENE

By CHARLES BASKERVILLE, Ph.D., F.C.S.; Professor of Chemistry and Director of Laboratories of the College of the City of New York; and Chairman of the Committee on Occupational Diseases in the Chemical Trades of the American Chemical Society, New York City.

THE universal publicity given to the use of "poison gas" in the World War undoubtedly directed greater attention in the United States to chemistry, with its mysterious possibilities, and the chemical industry, with its opportunities for production of wealth and possible control of trade therewith, than any other agency in modern time. Germany's specialization in the manufacture of coal tar derivatives coupled with extensive propaganda created an erroneous impression of the non-existence of a pre-war chemical industry in the United States. There is no necessity now to contradict the false impression, but it is a fact that the war brought about a remarkable stimulation to American chemical industry.

Speed Factor Lessens Safety

The pressure drove existent plants to intense systems for super-production. The exigency of the emergency brought about the hasty construction of many plants for the production of chemicals of great variety needed in the prosecution of the war. The speed factor did not admit providing all the preventives for the protection of the workers in some instances and the transitory character of contracts in others caused little concern for the welfare of labor. Chemicals have received most of the blame and unusual attention has thus become directed to industrial hygiene.

These and other factors associated with the enormous and permanent development of the chemical industry have caused thinking chemists to give the subject most serious consideration, often expressing a strong hope that something worth while might be done in a large constructive way to better conditions of the labor of the industry, the direction of the activity and the standard adopted to be based upon adequate preliminary study.

TO FOSTER CHEMICAL RESEARCH

Progress in chemical industries must of necessity carry with it a parallel improvement in the hygienic conditions of chemical workers, where the relation of disease to occupation has been established.

It should not, however, be necessary for each separate industry to discover right conditions for their men, for trial and error in this field cost in health and human welfare.

An endowment must be found to sponsor the coordination of all research agencies in chemistry, for the compilation of all data to present achievement, and for the direction of future activities.

Something has been done by individual corporations, National, State and Municipal public health boards, and by social welfare and other organizations, but the efforts of these agencies have not been coordinated. Prior to the war the American Chemical Society, through initiation by the New York Section, organized a Committee on Occupational Diseases in the Chemical Trades. The author has been chairman of this Committee since its formation and has attended numerous meetings seeking to do something of value, (1) through developing the interest of the manufacturers, (2) cooperation on obtaining uniform legislation in the different states and municipalities, and (3) bringing about a limited degree of publicity mainly among chemists. Some thing has been done in the way of research, in legislation, and publicity. In the first we have stimulated various health agencies to study conditions in the main and cooperated with representatives of boards of health and bureaus of labor in their investigations. In the second we have cooperated in formulating some uniform laws for a number of states and cities, especially in connection with wood (methyl) alcohol, now to be called correctly, methanol. In the third we have secured important contributions from specialists and caused them to have wide distribution in the trade.

The work has not been systematic or organized for the very good reason that it has had no financial support. The author knows that he may secure contributions for the work, but he feels that now is the time when it should be undertaken, according to a large program which would call for the entire time of a competent man and for more money than he could hope to secure. The program would call for the cooperation of the chemist, but not his direction. It calls for broad and comprehensive special training in the field of

preventive medicine, which involves social welfare.

The mephitic odor of the laboratory covers a maze of mystery in the lay mind and is held responsible for numerous maladies. The word "chemical" is sinister. Where chemical processes are in operation, especially when fumes or vapors, even though the latter be only steam, are seen to escape from the works, there grows a feeling of suspicion—often with reason—and all kinds of sickness are attributed to these "poisonous substances." If the author may judge from numerous letters, even the members of the medical profession are not free from these sensations and confessions. And well they may be in many instances for, even though the action of many chemicals in varying degrees of concentration be known, of many more the insidious effects are absolutely closed books. They require most diligent study and painstaking research.

In this connection it may be stated that there is an urgent need for publication of an immense amount of valuable research carried on by the Chemical Warfare Service of the Army and Navy, which now appears to have little chance to reach the light of day. The data on the physiological factors and changes involved in fatigue are of immense value. The alterations in gas masks for use in chemical industries in peace times constitute an important problem. The fact that workers, soldiers, and civilians, in chlorine plants or where small amounts of chlorine permeate the air, were practically immune to influenza during the first epidemic, while their neighbors living and working under similar conditions, save the chlorin, were stricken right and left, opens a vista comparable to the hopeful days of the Pneumatic Institute out of which came inhalation anesthesia, gaseous disinfection, and foundational knowledge of bacterial changes.

There are good people in the chemical industries and there are far sighted corporations seeking means to improve conditions, but the evils of the conditions first serve to call attention to their existence. Efforts to palliate are evident in providing medical attention. It is good business to have healthy labor, but the motive is primarily humanitarian. Multiplication and adaptation of education for the workers call for teachers with qualifications peculiar to the needs.

An excellent, but limited, program of training given at a few institutions is available for those who seek, but we know that suitably trained men and women cannot be had in adequate numbers to meet the demands.

I speak without authority, but I assert with assurance, that the chemical industry will welcome and cooperate with the separated efforts for the improvement of conditions; but it will go much further if those efforts are coordinated. So I venture to say that it would appear desirable to extend the present localized opportunities for instruction and tie them together in one main institute for research, advanced and special instruction, and for coordination.

Such a program is one that should appeal to one of the endowed foundations. It is one that a foundation would be capable of handling and able to inaugurate at once. Numerous currents, cross, converging, or diverging, have served to delay action. Data and ideas, differing in not irreconcilable modes of operation only, have been marshaled in such impressive array that other agencies may arise to provide the ways and means; but when? It has been strongly stated that such a project should be handled through the Federal Government and its agencies. That spells delay, as all men of common sense know too well, and the best promise of its being undertaken would seem to lie in the direction of one of the great foundations.

DURATION OF WAGE EARNERS' DISABILITIES

A tabulation of studies representing the experience of the Workmen's Sick and Death Benefit fund, presented by Boris Emmet in the March *Labor Review*, shows that slightly over 19 per cent of all cases and about 3 per cent of the total days lost were due to disability of less than one week. In 7.4 per cent of cases the disability lasted twelve weeks and over, these cases representing 37.3 per cent of all the disability days.

The age factor is to be considered in the duration of disability. The proportion of cases lasting under one week was 26.5 per cent in the age group 25 to 29, less than one-half of that rate—12.5 per cent—occurring in the age groups of 55 to 59. The percentage of disabilities lasting twenty-five weeks and over shows 1.4 per cent in the age group 25 to 29 as compared with 3.3 per cent in the age group 55 to 59. The proportion of cases lasting twenty-five weeks and over is 300 per cent greater in group 60 to 69 than in group 20 to 29.

The article is of great value to organizations having or proposing to have employees' sick benefit societies. The two principal factors to be considered are age, which is the most important, and occupation. Deductions are made from tables which give all occupational experience for specific and identical age groups, so as to eliminate the age factor and to ascertain the exact influence of occupation on the disability duration.

MORE PAY FOR INJURIES

Injuries reported to the United States Employees Compensation Commission since its organization in 1916 have numbered 61,628. Disability claims granted in the last three years number 29,866, the deaths, for which payments have been made, totalling 1,095. In 28,256 cases of temporary disability the average duration was seventeen days; in 15,374 of these cases which were compensated, the average duration was twenty-five days, resulting in an average award of compensation of $40.06.

THE SERVICE DEPARTMENTS OF THE R. K. LEBLOND MACHINE TOOL COMPANY

By SANDFORD DeHART, Director of Hospital, Cincinnati, O.

THE Social Service Department and the Hospital Department of this plant are two separate divisions, presided over by two separate directors.

The hospital department is under the supervision of a hospital director, and the social service department is under the supervision of a welfare director. These departments hold daily consultations with reference to the mental, physical, and general welfare, or the relief of the men in the shop.

The hospital department consists of nine rooms, a waiting room, a first aid room, a bacteriological laboratory, an operating room, an office, a dental room, a dark room for eye work, a bedroom, and a sterilizing room.

The hospital has been organized with two aims in view: (1) to take care of both minor and major injuries quickly, and (2) to supervise and care for the health of the men in the shop, with the object of keeping them fit and on the job. It also serves as a means of establishing a personal contact and confidence between the employer and employee, and it aids in discovering any dangerous occupations, machines, or appliances in the shop which may cause frequent injuries and which, therefore, must be more properly guarded. In this way proper safety appliances may be installed and it has been found that such appliances, together with a general regard for the welfare of the men have materially reduced accidents and injuries. While the value of health work is evidenced by a reduction in the number and seriousness of accidents, it is perhaps better shown in the increased efficiency of the men as indicated by increased production. Better relationships exist throughout the plant and there is a steady appreciation of health values.

THE MEDICAL UNIT OF A COMPANY

The medical service of the R. K. LeBlond Machine Tool Company affords an excellent example of what the medical department may come to mean in an organization.

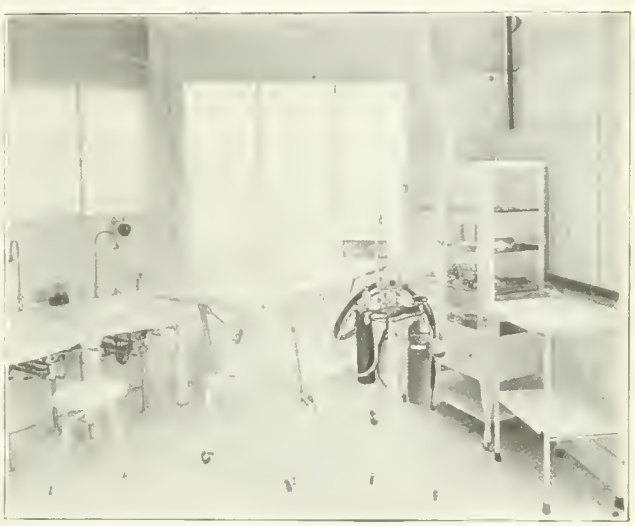
Designed primarily to care for the acutely sick or injured employee, its administration has broadened and become so effectual that prevention and welfare work overshadow corrective measures.

The mental welfare of the men is a matter of concern. Advice is provided on legal and financial matters and help extended in matters of personal adjustment or training in citizenship.

While we have an operating room for major operations, full equipped, in connection with our hospital we have had only one occasion to use it in the last two years, and that was for the partial amputation of a great toe.

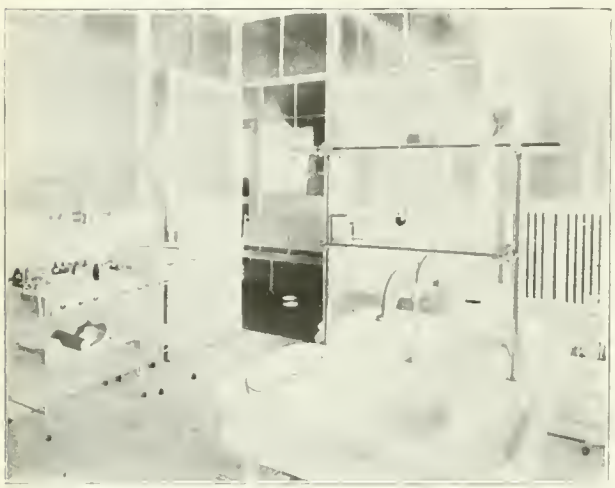
During the year 1919, there was 15,183 patients treated in our hospital, classified as follows: surgical conditions, 4,285; medical conditions, 5,136; re-dressings, 1,064; re-treat-

The hospital department of the R. K. LeBlond Machine Tool Company is equipped to take care of both major and minor work with the greatest possible expedition.



The operating room is fitted for the handling of major surgery, but so well has the preventive health work been done that its use has been requisitioned only once during the past two years.

ments, 3,192; and dental conditions, 1,506. This list includes every applicant for treatment, whether a new surgical case, a re-dressing, a new medical case, or a re-treatment.



Both medical and surgical care are provided for the men, the object of the service being not so much correction as keeping them fit.

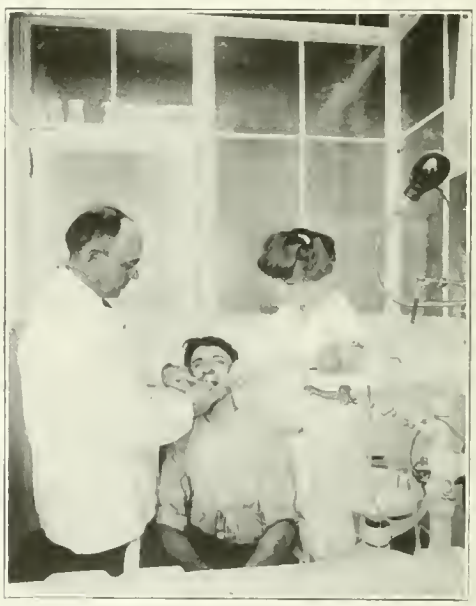
During the year no permanent disabilities were incurred; that is, no disabilities from which the injured did not entirely recover. There were no fingers lost, either partial or total, which is a remarkable record in view of the fact that machine shops are particularly productive of this type of injury.

Our eye cases show a marked decrease in number and severity for the year 1919. There were 979 foreign bodies extracted from the eyes, as compared with 1,302 in 1918, and 5,016 for 1917, with practically the same number of employees working. Of the eye cases only three were considered of sufficient importance or severity to be referred to an eye specialist. The foreign bodies were removed with the aid of a solution of 1 per cent cocain, and, when the piece had become deeply embedded in the cornea and there were indications of traumatic keratitis or impending corneal ulcer, a small disc of homatropin Hcl 1/40 gr. was used, a shield placed over the injured eye, and treatment given every two hours. With the exception of twelve cases the eye injuries were treated in our hospital, while the men remained on the job.

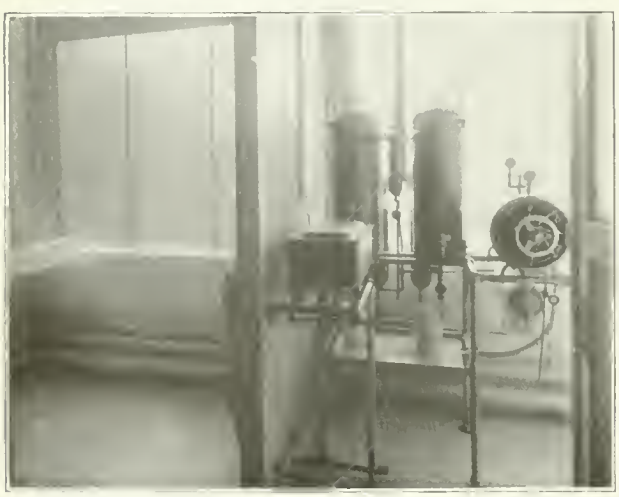
There were 190 days lost on account of accident incurred in the plant during the year 1919.

The Fatigue Factor in Accidents

During the summer months, beginning May 1 and ending September 30, an intensive campaign of accident prevention was inaugurated. These months were selected and given particular attention for the reason that fatigue is considered a prominent factor in the causation of accidents. This, however, did not prove true as the following data will show. Our records for this period show that there were sixty hours lost through injuries incurred in the plant and, since 1,000 men were employed, sixty hours meant a loss of 3.6 minutes per man for the period of five months. There was $6.90 compensation paid during the five months for these injuries.



Dental examination is made of employees periodically with a view to keeping their mouths in a hygienic condition. The work has afforded ample proof of the economic value of a dental dispensary.



The most approved type of installation is used throughout. The sterilization equipment is adequate for any emergency.

The sixty hours lost are distributed as follows:

During the month of May there were 16.2 hours lost; in June there was no time lost; in July there were 10.1 hours lost; in August there were 13.4 hours lost; and in September there were 20.3 hours lost.

The safety, sanitation, and health of the R. K.

LeBlond Machine Tool Company are under the supervision of the hospital department. It is the aim of this department to exercise as close and as careful a supervision over the human element

A self-service counter is provided for the men who do not desire a regular dinner at noonday. Everything is served that is usually handled at a counter of this kind.

as the engineer exercises over the inanimate machinery and technical parts of the plant.

Work of Dental Department

The dental department is under the supervision of a dentist who spends one hour a day at the plant. The dental department consists of a room, 8x10 in size, equipped with an industrial unit, cabinet, file, gas-oxygen outfit, and the usual small tools and appliances for performing extractions and prophylactic work. This department was equipped and furnished at a cost of approximately $1,800. The dentist is assisted by a nurse whose business it is to do the necessary clerical work, chart the patient's mouth, sterilize the instruments after each patient, and anticipate the wants of the dentist. With the help of a nurse the dentist is enabled to treat a great many more patients than he could without her assistance. His business is to examine the mouths of all of our employees periodically with the view of keeping the mouth in a hygienic condition. He also gives instructions as to the proper use of the tooth brush and dental literature by which the patient may discover the first symptoms of decay. We believe that if each employee cooperates with the dentist and at once consults his family dentist to have the needed work done, a maximum of efficiency will be maintained.

There were 1,506 mouths examined and charted during the year. Our records show that 96 per cent were in need of dental services; only 4 per cent were found to have clean mouths; 6 per cent were free from caries and responded to treatment readily; the remainder had disease producing symptoms known to dentistry, such as abscesses, pulp stones, inflamed pulp, ill fitting crowns, and ragged fillings, causing irritation.

The approximate cost per employe was about $1.12. Of the economic value of a dental dispensary there can be no question. The estimated saving to the company on extractions alone for the past year may be conservatively figured at approximately $2,200 in production.

Social Service Department

There are six particular fields of activity to which the Social Service Department devotes most of its time.

1. Absences from the plant, due to sickness or other causes.
2. Looking after the financial interests of the men by keeping them out of the hands of loan sharks and away from installment houses.
3. Personal attention to sickness or other difficulties in the home and to the amicable settling of family trouble.
4. Mutual Aid Society of the plant.
5. Legal aid and advice in the buying of homes or in the making of investments. With reference to this phase of the work the welfare director has the assistance of a competent attorney who spends one hour a day at the plant and whose business it is to give advice in legal matters, free of charge. His work, however, is primarily to keep the men out of trouble, rather than to get them out.
6. Aid in becoming citizens.

The Restaurant Facilities

Napoleon is credited with saying that an army travels on its stomach, and we are of the opinion that a man works on his stomach. With this idea

About seven hundred men are served with a regular dinner daily. The meal is well balanced, is served hot, and is served with such expedition that all men are busily eating within fifteen minutes from the noonday whistle.

in view we maintain a fully equipped restaurant and cafeteria. We consider this one of the main features of the Service Department.

About seven hundred men are served every day with a regular dinner, and about one hundred men who do not desire a regular dinner are served from a self-service counter. In order that the meals may be hot when served to the men, five large trucks are fitted with heated slabs. About eleven o'clock the waiters fill the plates and place them in these heated ovens. Three minutes before the noonday whistle blows the waiters begin to place the plates on the table, so that by the time the men arrive for dinner, about two or three minutes after twelve, the dinners are on the tables, ready for the men to eat. Everything is done in an orderly manner, and by 12:15 the men are all served and are busily engaged in eating their meal. Our hot meals, as a rule, consist of soup, one meat, potatoes, one vegetable, bread and butter, coffee, tea or milk, and a dessert. At the self-service counter are served soup, sandwiches, pie, cakes, fruit, coffee, and everything that is usually sold at a counter of this kind.

For the regular meal we have a coupon book of ten tickets which cost $2.50. This book is sold for cash or, if the men wish it, the amount is charged to their account and deducted from their salary at the end of the week.

Our dining room is a large beautiful room, on the third floor, running the length of the building, with windows on both sides, thus giving light, ventilation and sunshine,—a perfectly sanitary room for the men to eat in. The tables are of wood with vitrolite tops, each seating six men. Beautiful ferns and plants are arranged on opposite sides of the room which makes it a very pleasant room for the men at noon.

Every Tuesday and Thursday a musical program is given by our orchestra while the men are eating. The orchestra is made up of our own employees, who rehearse one hour a week.

Every Friday at 12:15 we have motion pictures, usually chosen for educational features, as well as for the giving of pleasure.

REPORT OCCUPATIONAL DISEASES

Every physician, states an Ohio law becoming effective May 4, who is attendant on or called in to visit a patient whom he believes to be suffering from lead poisoning, poisoning from phosphorus, arsenic, brass, wood alcohol, mercury, or their compounds, or from anthrax, or from compressed air illness, and such other occupational diseases and ailments as the State Department of Health shall require to be reported, must make such report to the State Health Commissioner within forty-eight hours from the time of the first visit. Reportable diseases are named in the Code, a penalty attached for nonconformance.

GROWTH OF THE NATIONAL SAFETY COUNCIL MEMBERSHIP

By LOUIS RESNICK, Director of Publicity, The National Safety Council, Chicago.

Like many other of the country's greatest institutions, the National Safety Council is the child of necessity. It is an organization that grew out of a great need felt by the managers of industrial plants who were doing pioneer accident prevention work during 1912 and the half dozen years immediately preceding it—a need for an exchange of experiences in this work.

Clearing House for Safety Information

No sooner had a few companies demonstrated what remarkable reductions could be made in accidents and what a great economic gain was yielded by accident prevention work than other companies all over the country became interested and began to burden the pioneers in safety with inquiries for information regarding their experience. So great was the demand for information of this sort that the idea of forming a national clearing house for accident prevention information suggested itself to a group of some two dozen men who were in charge of safety work in as many plants. The National Council for Industrial Safety, as it was then called, was officially organized at New York City, September 23 to 25, 1913, with the following executive committee: Messrs. R. C. Richards, Chicago & Northwestern Railway Company; C. L. Close, United States Steel Corporation; David Van Schaack, Aetna Life Insurance Company; Fred C. Schwedtman, Racine-Sattley Company; L. R. Palmer, chief factory inspector, State of Pennsylvania; H. M. Wilson, United States Government Mining Bureau; C. W. Price, assistant, Wisconsin Industrial Commission; Edwin R. Wright, Chicago; E. G. Trimble, Employers' Indemnity Exchange; G. L. Avery, Avery Company; Charles Piez, Link Belt Company; A. T. Morey, Commonwealth Steel Company; R. J. Young, Illinois Steel Company; R. W. Cambell, Illinois Steel Company; and W. H. Cameron, Chicago. The purpose of the organization was outlined by Mr. Campbell, the first president, as follows:

The National Council for Industrial Safety proposes "to promote the conservation of human life and its incidents in the industries of the nation, and to that end:

"(1) To establish a conveniently located headquarters for the maintenance of a clearing house of safety information, available to all concerned.

"(2) To encourage and promote throughout the country the organization of those engaged or interested in safety work into district and local councils, in affiliation with this National Council.

"(3) To hold annual congresses, at which all persons interested in accident prevention and kindred subjects may take part in practical discussion of vital problems and also have opportunity to examine carefully prepared exhibits; to publish and give wide distribution to proceedings of such congresses.

"(4) To encourage and assist in the practical standardization of safety devices, safe conditions, and practices.

"(5) To give the widest publicity, through its own publications and other channels, to all matters calculated to promote industrial safety.

"(6) In general, to initiate, promote, cooperate with and obtain the assistance of any and all activities or agencies calculated to conserve human life and its incidents in the Nation's industries; and to participate in and aid other activities for the welfare of the industrial workers of the country."

It should be noticed in passing that while the roster

of the National Safety Council has grown from a promise of fourteen memberships in 1912 to approximately four thousand industrial concerns, operating more than 7,500 plants and employing more than six million workers, in 1920, and, while the scope and service of the Council have gone far beyond the bounds of the original plans, the purposes of the Council as outlined by its first president are substantially the purposes of the Council today, and almost every member of the original executive committee is on the much larger executive committee of today and very active in the affairs of the Council.

Within a few weeks after the opening of the headquarters in Chicago the general manager, Mr. W. H. Cameron, through his contact with employers, realized the need of a definite weekly service to members. There resulted the development of the now extensive bulletin service of the Council. Eighteen thousand sets of three bulletins each, suitable for posting on bulletin boards, are sent to members of the Council each week. For a number of years the Council also sent out each week a special bulletin for executives. Recently this executive series bulletin has evolved into a weekly publication—the *National Safety News*—through which the executive officers and the men in charge of safety in the plants of members of the Council are informed of the very latest developments in the work of accident prevention.

Schools for Foremen and Supervisors

In the earliest years of the Council appeared the need of local activities in organized safety effort in industrial centers, a need for local organizations which would conduct meetings for workmen, foremen, and executives, and accomplish what it was impossible to effect through printed matter sent from the national headquarters. The National Safety Council therefore set about organizing locals, of which there are now forty in operation and at least a dozen in the process of formation.

The most successful feature of the local council work has been the development of schools for foremen and safety supervisors. It is commonly agreed by experts that a trained safety inspector is indispensable to the efficiency of accident prevention work in any plant. Many companies desire to select safety inspectors from among their own employees. The school conducted by various locals of the National Safety Council offer an opportunity for the training of such men.

In the latter part of 1916 the Council began to supplement its weekly bulletin service by monthly "Safe Practices" pamphlets, in each of which a particular hazard is discussed in detail and the safe practices in the construction and operation of the particular equipment involved described. This phase of the Council's service has been developed to the point where each Safe Practices pamphlet represents the result of extensive research work on the part of a high grade safety engineer with the cooperation of a conference committee of seventy-five of the Country's ablest safety engineers.

In 1917 the Council, realizing its need of men with technical experience, created an engineering department which since then has had in charge the preparation of all bulletins and Safe Practices pamphlets. This department now includes four safety engineers, who serve the membership of the Council not only in the preparation of bulletins and Safe Practices pamphlets but in investigating and answering all inquiries for technical information.

From the very inception of the Council the headquarters office began to develop a library. What began merely as a file of the information that was sent in by members has developed into the most complete library on accident prevention and industrial relations in the country. The National Safety Council library now has 10,000 booklets and pamphlets, 500 books, 5,000 clippings of special articles, and 1,500 blue prints and photographs—all devoted to safety or related subjects.

During recent years safety engineers and industrial managers who have given thought and attention to accident prevention have more and more come to see that Safety must be incorporated into the community life, not only in order to stop the alarming increase in deaths on the streets and in the homes, but to reach the workmen through their homes and to get them to respect Safety and to develop habits of caution. The National Safety Council is therefore carrying on a nation wide campaign for the organization of public safety.

GROWTH OF THE NATIONAL SAFETY COUNCIL MEMBERSHIP

Date	*Number of Members*
October, 1913	40
June 30, 1914	731
July 31, 1915	1,211
Aug. 1, 1916	2,120
Jan. 1, 1917	2,549
Jan. 1, 1918	3,484
Jan. 1, 1919	3,737
Mar. 1, 1920	3,854

The Council has not limited its educational work to its own membership. In some forty or fifty universities, through the efforts of the National Safety Council, the faculties have been induced to incorporate safety instruction in the curriculum. These universities are now giving consideration to the requirements of safety, both in instruction involving machine designing and plant management. The Council has for its objective during the coming year the securing of the adoption of instruction in accident prevention in all public and parochial schools.

NEW HARVARD COURSE

Intelligence in industrial management can hitherto be achieved by other means than in the long, hard school of experience, according to the *Boston Transcript*. The course recently instituted at Harvard is in charge of Dr. John M. Brewer, director of the Bureau of Vocational Guidance. The work will include job analyses and labor surveys and the solution of actual problems that arise in actual practice. Specialists from the several fields will present the following topics:

(1) The need for employment management.

(2) The qualifications of an employment manager.

(3) The installation of a plan for employment management.

(4) Selection of working force, including applications, job analyses, examinations and tests.

(5) Education, including Americanization, apprenticeship, education of foremen, education of operatives, vestibule school, upgrading courses, etc.

(6) Steadying employment, including the handling of absenteeism and tardiness, complaints, discharge, fatigue, work schedule, compensation systems, shop committees, transfers, labor turnover, etc.

(7) Service features, including financial aids, housing, insurance, legal aid, libraries, medical aid, profit sharing, plant publications, recreation, restaurants, safety, suggestion systems, etc.

(8) Due attention will be given to the arguments about and the machinery for cooperation in management, labor laws, labor problems, women in industry, and the relation of scientific management to employment management.

THE EXPERIENCE OF THE MEDICAL DEPARTMENT AT NITRO, W. VA.

By J. A. WATKINS, M.D., Medical Officer in Charge; Department of Industrial Medicine and Public Health, University of Cincinnati; Medical Director, Lunkenheimer Company, Cincinnati

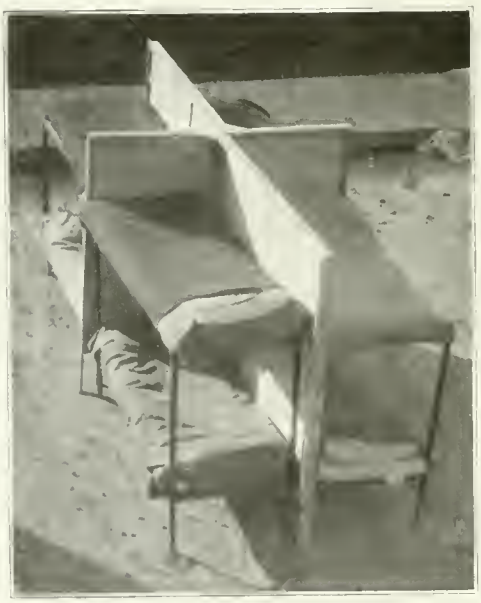
THE number or temporary rejections was relatively large. In this group fell mainly those afflicted with communicable disease which could be rendered non-infectious with an expenditure of time and labor consistent with operating conditions. Among this class was the venereally infected, the parasitic infested, and those suffering from acute exanthemata.

Enrolled with Disabilities Noted

Examination of the appended list showing the men enrolled with physical disabilities discovered, will at once illustrate with what leniency the medical examiners passed upon the qualifications of applicants for employment. It is also of interest, we believe, to note the large number of men who are physically imperfect. The relative number may be somewhat exaggerated because of the loss of the best men, physically, by reason of the enforcement of the Draft Law.

As stated elsewhere, if the men could perform even part of an honest day's work, and be of no danger to himself or his fellow men by reason of such association, he was allowed, so far as the medical examiner was concerned, an opportunity to so demonstrate his ability.

When men were passed for employment, the character of the work for which they were suited was specified on the examination card which was presented to the employment manager. It very often happened that after being employed for a length of time an employee for some reason desired a change of occupation. It was necessary in such case that he be re-certified by the examining medical officer in order that in his new position he would not be assigned work for which he was mentally or physically unsuited. He was not required to submit to a complete examination. His original physical examination record was consulted, however, and he was examined in some special manner for the purpose of certification. This procedure also was an excellent manner in which to watch for venereal infection and other infectious conditions, and a time and place of again coming in contact with the men in the plant. Such intimate and confidential relations between the employee and medical advisors proved advantageous.



A cubical bunking arrangement utilized at Nitro, W. Va., which has the advantage of simplicity and economy of arrangement, materials and space.

The applicant entered a dressing room where he was given a large canvas bag and a small canvas bag, with instructions to strip completely, putting all of his valuables in the small bag; all leather material, rubber, and felt to be kept to one side, and the remainder of his clothes put into the larger bag. He then proceeded to check his valuables, together with all leather, rubber, and felt materials, receiving in exchange for his bag a brass check with a number corresponding to the number on the bag. He then proceeded to a shower bath, at the door of which he was given soap. After taking a bath under observation of an attendant, he was, on emerging from the bath room, given a towel. After drying himself he proceeded to the record clerk, where he was given a numbered physical examination card. He was then placed on an automatic weighing scale where the height and weight were taken at one time and recorded on the card. He then proceeded to the examining room where he was given a complete physical examination, after which he was vaccinated against small-pox and inoculated for typhoid. A thumb print having been taken, he then turned in his brass check, received his belongings, was given verbal advice and popular public health and safety literature, passed into the dressing room, and proceeded to the employment office.

During the period of time elapsing between the time of turning in his clothes and calling for them at the window his effects had been searched

*This account is the second of three installments of an article on the experience of the medical department at Nitro, W. Va., which are being published in Modern Medicine. The third and last installment will appear in the June edition.

for vermin and drugs and passed through a high pressure steam sterilizer.

RESULTS OF PHYSICAL EXAMINATIONS

Total number rejected	621	or .8%
Temporarily rejected	6,697	or 8.8%
Immediately passed and employed	69,680	or 90.4%
Total passed and employed	76,377	or 99.2%
Total number of men examined	76,998	
Total number of examinations made	94,438	

One hundred ninety venereal infected refused treatment and deserted. The greatest single cause for rejection was for epilepsy, 102, 16.4 per cent, rejections having been made for this reason. Next in importance was active pulmonary tuberculosis, 85, 13.6 per cent, rejected applicants being in the infectious stage of this disease. Other causes of permanent rejection were:

Inadequate vision	51
Trachoma	45
Miscellaneous chronic and debilitating diseases	33
Uncompensated heart	20
Extreme old age and general debility	16
Discharging tuberculosis sinus	14
Deaf mutes	14
Mentally deficient	12
Extreme hernia	11
Asthma	10
Drug addicts	5
Tabes dorsalis	4
Cirrhosis of liver, aedema, and ascites	3
Loss of limbs	4

Temporary Rejections

Of the 76,998 applicants 6,697, or 8.7 per cent, were temporarily rejected for the following reasons:

Venereal infected (1.7% of men examined)	1,358
Measles	15
Mumps	5
Erysipelas	2
Diphtheria	2
Small-pox	8
Chicken-pox	4
Scabies	71
Suspected Trachoma	55
Delirium tremens	5
Parasitic infested (body lice, head lice and bed bugs, 3% of men examined)	2,362
For medical relief (3.6% of men examined)	2,778
Acute alcoholism	20
Total	6,697

It is of interest to note the large number of venereally infected and the parasitic infested weeded out, and also the large number which required immediate medical relief. Of the 1,358 venereally infected 1,120, 82.4 per cent, were acute gonorrhea; 210, 15.4 per cent, syphilis in an infectious stage; and 28, 2.2 per cent, were chancroid in the acute stage.

Some obvious physical disability was shown by 10,104 men, or 14.1 per cent, of those examined. In 3,667, 33 per cent, of these cases the abnormality was of sufficient importance to make it the subject of special record for future observation and treatment. In a total of 76,996 examinations, 2,928, 3.8 per cent, were found to be suffering from hernia of all types; of these, 2,728, 95 per cent, were inguinal; 41, 1.4 per cent, ventral or post-operative; 17, 5.8 per cent, femoral; and 3, 1 per cent, were epigastric.

In the follow-up work 17,550 re-examinations were performed. In 133 instances men were sent home who were found to be suffering from some cause of permanent rejection suspected, but not definitely determined at the time of original examination. The remainder were for the purpose of imposing remedial measures, occupational transfers, or prophylactic occupational disease work.

The physical examination of women was performed for exactly the same reasons as were the examinations of the men. They followed in a general manner the same character and the same requirements for employment were in general instituted. Examinations were performed by female physicians who worked under the direction of the Medical Officer in Charge of Physical Examinations. Rejections, both permanent and temporary, re-enrollments, and certification for specified employment were carried out as with the men.

The total number of applications for employment was 525 and the results of physical examination follow:

PERMANENT REJECTIONS

Epilepsy	1
Pregnancy of 2 months or more	3
Active pulmonary tuberculosis	4
Uncompensated heart	2
Vision (acuity inadequate)	6
Deaf mute	1
General physical disability	1
Total rejected (0.3%)	18

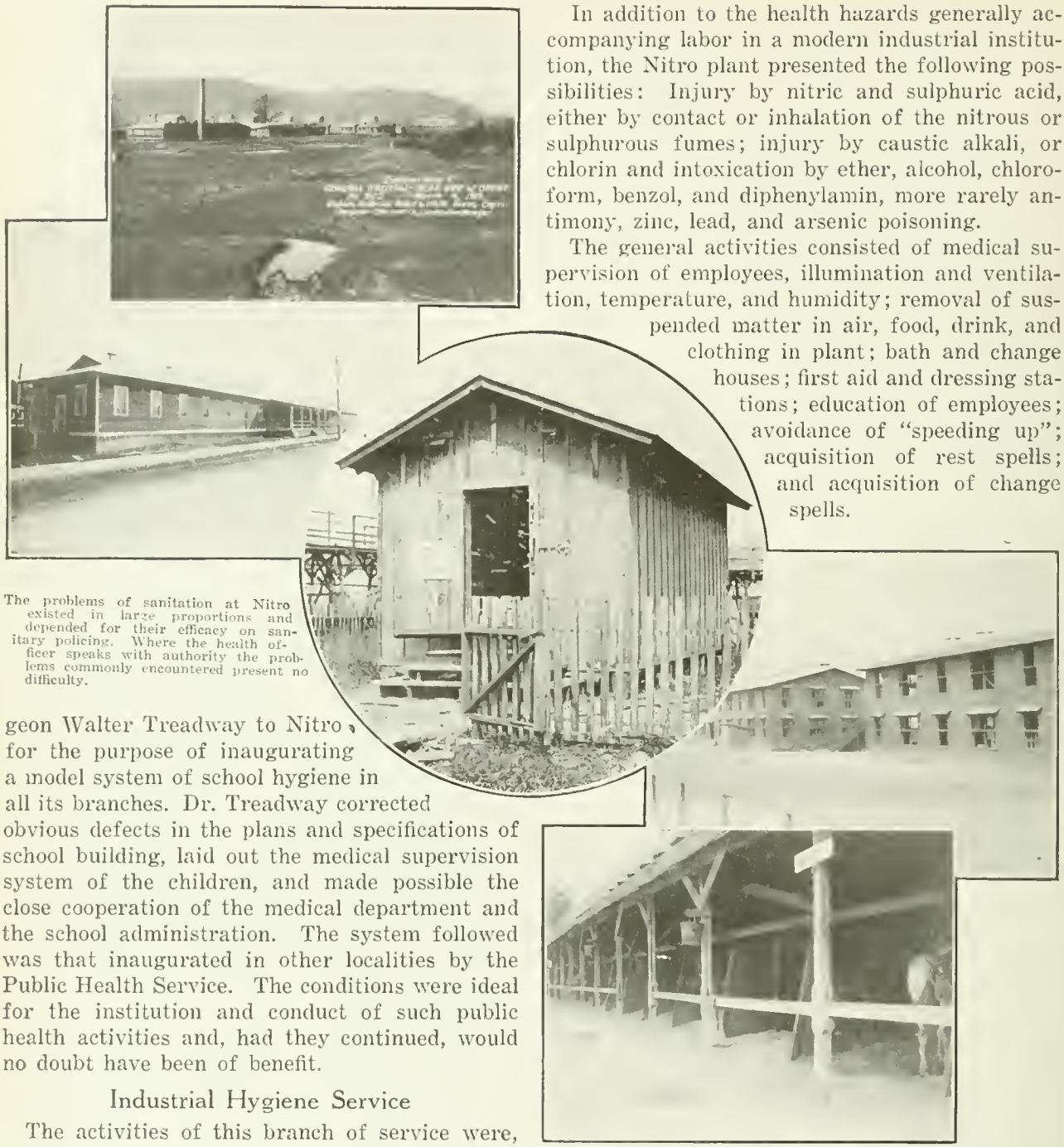
TEMPORARY REJECTIONS

Gonorrhea	1
Scabies	3
Pediculosis	1
Syphilis	1
Bronchitis (acute)	2
Total rejected (0.01%)	8 or .01%

WOMEN ENROLLED WITH DISABILITIES

Loss of one eye	4
Impaired vision	10
Impaired hearing	2
Compensated heart	5
Spinal curvature (all types)	14
Loss of one finger	3
Loss of four fingers	1
Acquired deformity of hand (limited motion)	1
Hernia—inguinal	1
Procidentia	2
Varicose veins (extreme)	29
Acquired deformity of ankle	1
Acquired deformity of foot	2
Total enrolled with disabilities (14%)	75
Passed and employed (96.6%)	507

The physical examination and medical supervision of the employees and their dependents extended to the school children. Upon request the Surgeon General detailed Passed Assistant Sur-



The problems of sanitation at Nitro existed in large proportions and depended for their efficacy on sanitary policing. Where the health officer speaks with authority the problems commonly encountered present no difficulty.

geon Walter Treadway to Nitro for the purpose of inaugurating a model system of school hygiene in all its branches. Dr. Treadway corrected obvious defects in the plans and specifications of school building, laid out the medical supervision system of the children, and made possible the close cooperation of the medical department and the school administration. The system followed was that inaugurated in other localities by the Public Health Service. The conditions were ideal for the institution and conduct of such public health activities and, had they continued, would no doubt have been of benefit.

Industrial Hygiene Service

The activities of this branch of service were, for administrative purposes, divided into two classes: (1) General activities which had to do with the acquisition and maintenance of conditions which are applicable to industries in general; and (2) special hygienic measures which dealt with conditions brought about because of the special industrial processes carried on at Nitro. In the latter, we profited by the experience of others engaged in similar work. Particularly are we indebted to Dr. W. G. Hudson, of the Du Pont de Nemours Co. Only a brief discussion can, of course, be given here of these activities, the industrial processes carried on, or the attendant dangers.

In addition to the health hazards generally accompanying labor in a modern industrial institution, the Nitro plant presented the following possibilities: Injury by nitric and sulphuric acid, either by contact or inhalation of the nitrous or sulphurous fumes; injury by caustic alkali, or chlorin and intoxication by ether, alcohol, chloroform, benzol, and diphenylamin, more rarely antimony, zinc, lead, and arsenic poisoning.

The general activities consisted of medical supervision of employees, illumination and ventilation, temperature, and humidity; removal of suspended matter in air, food, drink, and clothing in plant; bath and change houses; first aid and dressing stations; education of employees; avoidance of "speeding up"; acquisition of rest spells; and acquisition of change spells.

The special activities consisted in the avoidance of industrial intoxication or injury, either rapid or insidious, by the various harmful chemicals manufactured or used in the manufacturing processes at Nitro. This was supplemented by facilities for the early diagnosis and treatment of intoxication or injury, did such occur. Working conditions were made as free of danger as possible, *i. e.*, the building, the industrial process, and the immediate environment were made as safe as consistent with the proper performance of the work. Then the workman was protected by clothing, appliances, equipment, and facilities

aiding in or preventing intoxication or injury; and, finally, by means of popular education, employees were instructed in the dangers of their occupation and so were able to avoid untoward effects.

Workmen and their dependents were housed in Nitro in either one of two ways, in barracks or bungalows. Both of these types of housing structures were of the characteristic design and material used at Nitro, *i. e.*, frame and plaster board with paper and composition roofing, and gas, heat, electric light, public water, and sewage facilities. Such quarters were plainly and sparingly furnished, but adequately furnished with sleeping and sitting room furniture.

The private rooms for the female nurses were adequately furnished with bedroom furniture.

Of the barracks there were sixty-seven, of three different designs; of the bungalows, 1,253, of three different sizes and designs. The different races, more especially colors, were segregated in definite areas. In general, certain districts were assigned to skilled and unskilled workmen. Most unmarried men were housed in the barracks, while married men, especially if accompanied by the families, were quartered in bungalows, with whom, in many instances, single men occupied in the more responsible or executive positions were quartered. A nominal charge was made for rental and the facilities afforded. It is believed that these bungalows met the requirements in a satisfactory manner, on the whole, though a few structural changes were later made and a change made in the heating and ventilating installation in the barracks. What undesirable, unhygienic conditions that did exist came about by overcrowding, unhygienic habits of occupants, or failure of those entrusted with the proper cleansing and care of the quarters rather than from any basic fault of the housing structure.

Though the responsibility for conditions of housing held throughout the area, little attention was given bungalows housing the families of the skilled workmen or those occupied by the more responsible of the workmen. Constant attention, however, was given to those quarters occupied by laborers, particularly the barracks. The steps taken to acquire and maintain proper hygienic conditions in these quarters may be of interest.

In each barracks an inspector, working under the direction of a medical officer, was responsible for the maintenance of given conditions of temperature, illumination, ventilation, the compliance of men with barracks' rules, such as the anti-spitting rule and the proper cleansing of barracks by porters. The inspector also reported to the medical officer any matter bearing on the proper care of these quarters. The efficiency of this plan depended entirely upon the ability, intelligence, and character of the inspector in charge, especially the discipline he maintained over the occupants.

When parasite-infested beds were discovered, they were first entirely cleansed and sterilized in either the steam pressure chamber or in the cyanide house and then laundered. The cyanide house[1] was an air-tight room built of tongue and groove floor boards and tar paper, the heavy bevel edged door on either side being similar to the doors on a large ice box. Racks on which bedding was placed were in tiers on either side, while the tubs in which the gas was generated were placed two on each side. Electric fans and light were supplied. The cyanide was dumped into the acid in the tubs by an arrangement operated from the outside of the building. The plan proved to be both effective and economical, as both acid and cyanide were procurable at the plant. During the period covered by this report 2,526 cases of pediculosis were discovered; 22,128 pieces of clothing and 24,713 pieces of bedding were sterilized for the elimination of vermin.

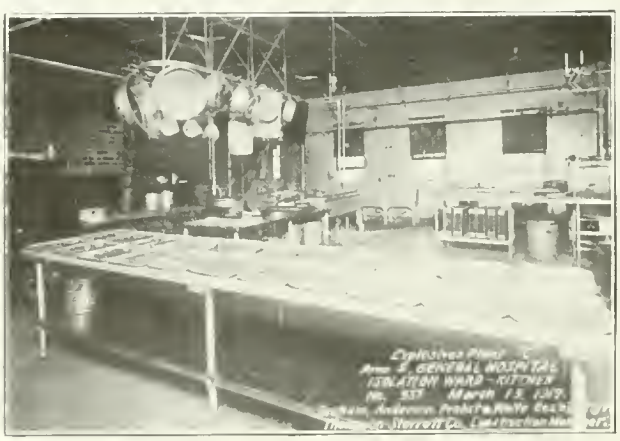
A corner of the nursery, General Hospital.

1. For further information, see Public Health Reports.

Beds were of several types. Canvas cots and single woven mattress cots were used, though double-deck iron bunks predominated. Men were first assigned to these barracks and given not less than 110 square feet per man. Housing became such an urgent matter, however, that overcrowding became unavoidable. To meet this, the following cubicle system was designed and placed in operation. It proved satisfactory and is recommended. By placing four men close together, but separated by the shields, an open space of greater, area, and hence greater safety, was procured. A safe grouping with about 100 per cent increase in capacity was thus made possible.

A view of the mess hall of the General Hospital, showing the dining rooms for doctors and nurses.

Active measures for venereal control were instituted at the outset. Although the work was carried on as a distinct branch of the medical department, its activities extended to that of other departments, the work of these departments being discussed elsewhere in this article.



The kitchen of the isolation ward, General Hospital, Nitro, W. Va.

Among means for the discovery of the infected were the medical examination of all men arriving at Nitro; all applicants for change of occupation; bi-monthly examination of all mess hall employees; unannounced examination of men in barracks at night and at out-patient relief and dressing stations, when men reported for injury or other sickness. Many men were in this way examined at intervals; 76,998 were examined for venereal infection a total of 103,206 times. Such opportunities for the discovery of venereal infection were aided by educational propaganda which encouraged men to report voluntarily.

No man was refused employment because of infection. He was, however, immediately taken charge of by the medical department, being either hospitalized or partially isolated, and placed at work. He remained in the hospital only until it was safe for himself and his fellow workers. In some instances men were isolated. In carrying out this plan, the patients first received instruction as to the nature of their malady, how it is contracted and spread, the dangers thereof and how to avoid them. They were not allowed to perform certain classes of work and were housed in definite barracks. When cured or rendered

non-infectious, they were discharged from observation.

Treatment of venereal cases was performed only at the isolation hospital or the genito-urinary dispensary located in the venereal barracks. Much of the routine work was carried out by graduate female nurses and trained male nurses, under the supervision of the Medical Officer.

A propaganda campaign was directed against ignorance regarding venereal infection, and under the circumstances was somewhat effectual, as only 13.5 per cent of the venereal cases contracted the infection after arrival at Nitro. This educational campaign was divided into written and spoken work. The written propaganda consisted of circular letters, posters, pamphlets, illustrations, and photographs. The more influential part of the work consisted of private talks to each workman at the time of employment, to groups of isolated working gangs, the instruction of foremen, barracks talks, and lectures at the Young Men's Christian Association.

The following table shows, in condensed form, the medical relief afforded the venereal infected at Nitro.

MEDICAL RELIEF VENEREAL DIVISION

Disease	Admitted
Balanitis	2
Chancroid	141
Epididymitis	59
Gonorrhea	1,663
Gonorrheal Ophthalmia	1
Herpes Genitalis	1
Inguinal Adenitis	24
Prostatitis	21
Syphilis	328
Urethral Abscess	3
Total	2,243

ADMINISTRATION OF SALVARSAN

Number of Injections	Number of Men
One	345
Two	298
Three	255
Four	90
Five	11
Six	6
Seven	5
Eight	5

MINOR OPERATIONS

Circumcision	11
Dorsal Slit	5
Inguinal Adenectomy	24
Urethral Dilatations	101
Hydrocele	6
External Urethrotomy	1
Excision of Condylomata of rectum	1
Total	149

As stated elsewhere, many records were lost in the fire. The following data, however, may be

Explosives Plant "C"
Area 5. GENERAL HOSPITAL.
MESS HALL & KITCHEN BLD'G. STORE ROOM
No. 940 March 19, 1919.
Graham, Anderson, Probst & White Chas. H. Sligh Engrs.
Thompson-Starrett Co. Construction Number

The store room of the mess hall and kitchen building.

of interest: Sixty-two per cent of the venereally infected acquired the disease while under the influence of alcohol. Of the total number affected with gonorrhea, 4.6 per cent developed complications. Acute gonorrhea required an average of four days in bed. Complicated cases of gonorrhea required on an average of eight days in bed. Chancroid patients remained in the hospital an average of twelve days. The time limit in complications with gonorrhea were as follows: First week, 9 per cent; second week, 28 per cent; third week, 37 per cent; fourth week, 14 per cent; fifth week, 12 per cent. Ninety-eight per cent of syphilitics coming under observation of the medical department were rendered non-infectious before they deserted treatment. Fifty-five per cent of the syphilitics gave a positive Wassermann reaction within two weeks after the initial lesion appeared. Of all the intravenous injections of salvarsan, untoward results were experienced in only four patients, in whom "sore arm" developed.

An exceptional opportunity was offered at Nitro to demonstrate the feasibility of the prevention of the spread of communicable disease. We have demonstrated our ability to control the mosquito,

Store house of the General Hospital at Nitro, W. Va.

the rat, and the louse; and we have also demonstrated our inability to control the remaining link in the chain, *i. e.*, man. At Nitro it was possible to control the man to a far greater degree than the average urban health officer is able to exercise such restrictions. The results of the experience at Nitro demonstrate the results that can be obtained where modern measures can be imposed and carried out. An exception, of course, is made in the case of influenza, which evaded all preventive efforts. Though advance knowledge of the pandemic was had, and fully outlined, our methods of procedure had been decided upon and all the contemplated precautions taken, we were nevertheless overwhelmed by the undue prevalence of this disease.

taken to the physical examination building, where they were bathed, vaccinated, subjected to a medical examination, and their clothing disinfected in the routine manner described elsewhere. The parasite-infested were sent to the detention barracks; the infectious, including the venereal, to the isolation hospital; the sick to either the general hospital or out-patient office, depending upon the severity of the case. Doubtful cases were held for observation, and certain cases, such as drug addicts or the mentally afflicted, received special measures. The apparently clean and well were sent to certain barracks, where they remained from five to seven days before being assigned to permanent quarters. Ordinarily it would seem that the introduction of the infectious, or infested,

Explosives
Area S, GENERAL
MATERNITY WARD - NURSERY
No. 329 March 4, 1919
Graham, Anderson, Probst & White Des'g Eng'rs.
Thompson-Starrett Co., Construction Manager.

A cheerful view of the maternity ward and nursery.

IMPORTED COMMUNICABLE DISEASES PLACED UNDER CONTROL MEASURES

Disease	Number of Cases
Diphtheria	6
Epidemic cerebrospinal meningitis	5
Erysipelas	6
Measles	27
Mumps	11
Pneumonia (lobar)	18
Pneumonia (bronchial)	25
Scarlet fever	6
Small-pox	8
Whooping-cough	3
Typhoid fever	45
Venereal disease	1,358
Trachoma	45

Workmen usually arrived at Nitro during the day on special trains. They were immediately

would be prevented by such precautions if carefully and consistently carried out. Though no communicable disease was reported as so escaping the vigilance of the medical officers, yet this department repeatedly passed parasitic infested men or clothing. These were found in the barracks, where a daily inspection of all beds, clothing, and effects was made under the direction of a medical officer.

Popular public health literature, and venereal disease and accident prevention pamphlets were distributed, and the men told how, when and where to receive prophylactic or remedial relief. It is believed that such measures assisted in the prevention of the spread of communicable disease. In the bungalow section dependents of employees were inspected and vaccinated, but not

A doctor's private office in the General Hospital.

examined physically, before being assigned to quarters. Many infectious cases were thus discovered and properly isolated, though a few in the incubation period were passed.

There were thirteen mess halls, the employees of which were examined by a medical officer every two weeks. During this period of time, 6,198 medical examinations of food handlers were performed, thirty-three of whom were disqualified. Four suffered from tuberculosis which had escaped the original medical examination; sixteen had contracted venereal infection; two were found to be typhoid carriers; three had scabies, while the remainder were disqualified because of personal uncleanliness.

In addition to these precautionary measures, an isolation hospital was equipped and conducted as described under the section dealing with medical relief. In some cases, as for instance the presence of communicable disease in the person of an infant or small child, the case was not separated from its mother. Again, if it was impracticable to take the mother away from the household and her domestic duties, house isolation was resorted to. In these cases strict quarantine of the house and isolation of the case were carried out with good results. The system of control was assisted to a great extent by the inauguration and conduct of a visiting nurse organization. The duties of the visiting nurses did not vary a great deal from those required of such personnel in many urban communities; but, because of the unusual status of the medical department at Nitro, a very close supervision was possible and was attended with exceptional results. In addition to the above activities, an extensive system of public education was carried out both by means of lectures, talks, and a system of written propaganda leaflets, and circular letters. It was found that the acquisition of cooperation in order to carry out isolation measures depended to a great extent upon the knowledge and understanding of the laymen as to the modern conception of the cause, the prevention, and the cure or treatment of disease.

As a part of the system for the prevention of the spread of communicable disease, universal vaccination against small-pox was attempted. Of 76,998 workers examined, only twenty-one refused to be vaccinated against small-pox, and there was approximately 15 per cent of "takes" in small-pox vaccination. The fact may in part be explained by reason of the advanced age of many of the employees, most of whom had not been successfully vaccinated for from ten to forty years, and not only many children but many adults here were first vaccinated. In vaccinating against small-pox, careful methods of procedure as were possible under the circumstances were carried out, but no dressing or shield was applied. It is gratifying that of the 80,174 men, women, and children vaccinated, only nineteen infections were seen, and these were found in cases where violations of physician's instructions had taken place. A large number of very severe reactions, however, were seen. Eight cases of small-pox were imported, but no secondary case developed.

MODERATION IN ALL THINGS

The characteristics of people more than seventy years of age, says Dr. George L. Meylan, director of the gymnasium of Columbia University, are that they do not worry, have happy dispositions, and eat, drink, exercise, and enjoy themselves moderately.

"There is abundant evidence," says Dr. Meylan, "to justify the belief that the average duration of life could be increased from ten to twenty years by the adoption of the principle 'moderation in all things,' deaths by infectious diseases and violence excepted."

SCIENCE AND INDUSTRY

The country under occupation by the Allies in the vicinity of Cologne includes some of the best examples of German chemical industry, and it is interesting to learn that the great factories on the banks of the Rhine have been visited recently by a deputation of British experts. Their report has been issued and, generally speaking, confirms our previous knowledge of the Germans' activity and their remarkable steadfastness of purpose. It is not so much initiative or ability that they possess as a determination to work out detail and to adapt the lessons of the laboratory to commercial ends. They have turned chemistry to national account, and that is the main lesson of the report to us. In Germany scientific investigation is encouraged, the best advice is gained, and men who are trained to a high level of efficiency are well remunerated. This policy, begun years ago, succeeded, and explains why Germany took a lead over other nations in producing fine and heavy chemicals, pharmaceutical products, and dyestuffs. The report should have a healthy and stimulating effect on the chemical industries of this country. We are not behind in ability, but we are slow to reap, commercially and nationally, the harvest of our scientific attainments.—*The Lancet.*

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

BROADENING THE ATTACK UPON TUBERCULOSIS

High hopes were entertained ten years ago in regard to the efficiency of the sanatorium as the principal weapon in our fight against tuberculosis. It was believed, and rightly believed, that the establishment of municipal and county sanatoriums of sufficient capacity was the first step in a comprehensive attempt to limit the ravages of this disease. We were inclined, however, to overestimate the gains that could be secured by this first step alone. Sanatoriums have been opened,—in large numbers, and in certain states there is today even a surplus of unfilled beds. We are beginning at last to obtain reports of the ultimate effectiveness of the sanatorium; and these reports are in some respects discouraging. Few can doubt that sanatoriums accomplish most gratifying results in the improvement of many an individual case. Yet when we recall the fact that of 1,056 patients discharged from Massachusetts sanatoriums between 1912 and 1914, only 29 per cent were in good condition and at work in 1916, —and that of 2,701 patients discharged from Wallum Lake, R. I., between 1906 and 1915, only 31 per cent were in good condition and at work in 1917, it seems clear that the maximum possible results are scarcely being realized from the sanatorium as an instrument of healing.

There appear to be at least two clear reasons for the incomplete achievements of the sanatorium in the past; and both of them are beginning to receive the attention they deserve at the present time.

The first defect in our utilization of the sanatorium, as has long been clear, is the fact that we have begun treatment too late, when the disease had proceeded too far for curative measures to prove of avail. In but few states or cities do the cases of tuberculosis reported in a given year exceed the reported deaths, while as a matter of fact we know that there exist in any community about ten cases for every death. The mortality rate is, of course, generally between 100 and 150 per 100,000; but studies carried out by Dr. Armstrong at Framingham, Mass., and by the District Nursing Association of Providence indicate that a random sampling of the population will show between 1 and 2 per cent affected with tuberculosis. Intensive search for tuberculosis cases at Framingham, reported by Dr. Donald B. Armstrong at the recent meeting of the National Tuberculosis Association in St. Louis, increased the number of known cases of tuberculosis from twenty-seven to two hundred in the examination of 13,000 men. On the other hand, effective measures for the treatment and control of these newly discovered cases has reduced the mortality from tuberculosis from 121 per hundred thousand to eighty-four per hundred thousand in three years. At the beginning of the Demonstration the ratio of active cases to deaths was three to one. This ratio was increased during the first year of active work to nine to one. There is relatively little object, according to Dr. Armstrong, in educating the public regarding the danger of infection from the known tuberculous cases if two-thirds of the actual cases in the community are unknown, and therefore not receiving treatment.

In connection with predisposition to disease, the inimical conditions associated with certain industrial pursuits need to be the object of specially adapted sanitary measures. Published data regarding the mortality experience in certain industrial groups reveal an undue percentage of deaths from tuberculosis. Whatever the underlying causes, all contributing factors need to be accurately measured, and whatever motive actuates the health activity, whether it is the outgrowth of an efficiency or a welfare movement, half-way measures in tuberculosis control are foredoomed to failure. Success can be counted on only in a broadly inclusive health administration.

The first essential in the present-day anti-

tuberculosis campaign is the detection of these cases in their early and curable stages. This means on the one hand a renewed effort to educate the public as to the importance not only of prompt recourse to medical assistance on the first signs of illness, but of systematic medical examination at regular intervals in the absence of any such signs. It means, on the other hand, the education of the medical profession in the difficult and neglected art of diagnosing tuberculosis through the establishment of special clinics, permanent or itinerant, and the provision of a special consulting service such as has proved so brilliantly successful at Framingham and elsewhere. The development of a strong public health nursing organization for the preliminary detective work which brings so many cases to our clinics is of course an essential part of the machinery for the discovery of the early case.

There is another defect in the present sanatorium system which is almost as important as the one just under discussion. The patients not only enter these institutions too late; they leave them too early. The average period of residence in most sanatoriums is under six months. In six months some patients are really cured and stay cured. Some die or continue to suffer a progressive increase of the disease. The greater number, however, improve and continue to improve so long as they remain under favorable sanitary and hygienic conditions; but when they go home to the factory and tenement, the infection quickly lights up again. It must be recognized that for a certain definite proportion of tuberculous cases what is needed is not a *cure* in the sense of a transitory treatment, but a permanent change in the conditions of daily life.

A permanent sanatorium residence is, of course, neither necessary nor desirable for such cases, even if it were economically within the bounds of possibility. What is necessary is the creation of living and working places, if possible of communities, in which are provided environmental and social conditions that permit the arrested case to retain his health.

Until we get early cases for treatment and return the arrested cases after treatment to an environment in which the ground gained may be held, we must say of the sanatorium what the wise prelate said when told that Christianity had failed: "It has not failed. It has never been tried."

1. Am. Rev. Tuberc., III, 276.

THE NEW SURGEON GENERAL

THE appointment of Dr. Hugh S. Cumming as Surgeon General of the United States Public Health Service should mark the opening of a new and important chapter in the history of the public health movement in America. Dr. Cumming has had a long and distinguished connection with the Service which he is now to lead. He has represented its interests in many parts of the world and has a wide knowledge of the problems of international quarantine which are of such peculiar importance; and he has also taken a notable part in the investigations of sanitary problems at home through which the Service has done so much to further the advance of that fundamental scientific knowledge upon which practical sanitation must be based. General Cumming takes office with the most cordial good wishes of the health workers of the country.

There has been gradually built up in Washington a National Department of Health of which the Nation need in no way be ashamed. Yet the rapid growth of the public health movement in general makes it essential that the Service should be expanded far beyond its present modest proportions. We are apt to hear a great deal about governmental economy in the year before a national election. Some economies are wise, however, and some are foolish. The niggardliness with which Congress last year crippled the Public Health Service was of the latter sort. General Cumming will find widespread public support for a broad and statesmanlike plan of expansion which shall bring the Public Health Service to the highest possible usefulness as the guiding influence in the nation wide and continuous war against preventable disease and death.

EDITOR.

PUBLIC HEALTH SURVEYS

By HAROLD B. WOOD, M.D., Dr. P.H., Acting Assistant Surgeon, Office of Industrial Hygiene, United States Public Health Service, New York City

A PUBLIC health survey is an accounting of the health conditions and needs of a community. It is not simply a compilation of statistical matter, but a descriptive report of all local influences of community social welfare. It is not a method for criticism, of public exposure of human actions, but constitutes a systematic method for determining practical public needs and for developing cooperative individual enthusiasm with public effort.

WHAT IS A SURVEY WORTH?

Public health surveys show conditions in their true perspective and enable the consideration of all factors in formulating measures for disease control. Unsuspected conditions are brought to light and thereby become correctible.

Surveys yield necessary timely suggestions and are educational in that they relate to conditions which are actually of local importance.

The value of compiled statistics and questionnaire reports is arrived at only by checking them against surveys of existing conditions, they serve as the only rational basis of budget making.

The purpose of a health survey is to detect the presence and correlation of all conditions and factors affecting health and for formulating practical and economical measures to decrease disease and increase comfort. No survey is a success until it has accomplished all these objects. A survey must be strictly non-partisan but, while occupying a neutral position, it legitimately considers the local methods of filling the positions to be occupied by the public servants to whom is intrusted the general program of bettering health conditions.

A survey may be a general health survey of a municipality or of a rural district to determine the existing conditions of all factors which pertain to health, or it may be a compilation of data in reference to some particular social phase or disease. It may also be a survey, for either of these purposes, of some particular industrial plant or of a group of industries.

General municipal surveys may be very wide in scope, as is illustrated by those made in Springfield, Ill., Topeka, Kan., New Haven, Conn., and in Charleston, W. Va. They may be more restricted in their field, as was the case in the survey of Birmingham.

A detailed report of a survey is of much more than local interest. Communities of equal size and latitude have much the same problems to face, and a careful survey of one will be of assistance to the others in the solution of their problems. It is easier to understand the true significance of conditions when a comparison is made with those of other localities. A report of a survey therefore becomes a municipal textbook. Within the municipality chiefly concerned, a survey serves as a guide for city planning, municipal development, health activities, and charitable services, as well as a useful report for state activities.

The expense of a survey depends upon its extent and should be met by the community concerned. A brief study of the vital statistics and disease records, with an inspection tour among the factories, will clearly indicate the probable need of a survey and whether the cure will be worth the treatment. Whether the recommendations should all be adopted depends upon the local value given to comfort and health. Lives are balanced against dollars.

Partial Surveys and General Ratios

A partial survey of a district is even of considerable value, as it will reveal some unexpected conditions; but it is fallacious to make a partial survey, as of certain selected blocks or through a banded section across a city, and expect that the results found will obtain for the entire city, or that an approximate estimate for the city may be deduced from the conditions found in any given section. A careful survey of a given section of a city will reveal the conditions existing therein, and not what may be found in other portions populated by other races, built during some other period of time, or which may be constructed or maintained according to other standards of hygiene and social or industrial development. A survey of one typical block of the east side of New York will give a very close idea of the conditions of adjoining blocks populated by the same class and race, but not of any other section of the city.

This limitation of partial surveys is shown even in the work in small towns. In a mosquito survey in Pennsboro, W. Va., it was found that a certain section was heavily infested with breeding

mosquitoes but other districts were comparatively free, although they offered just as ample opportunities for breeding. The explanation was not difficult, but the point was illustrated that the mean general ratio of breeding could not be estimated from a partial survey. Even in a statistical survey of influenza, the result of judging a city by a partial survey is well illustrated by the results obtained in Schuylerville, N. Y. The main street of the town is fairly typical of the social and racial conditions, as it contains some of the best residences and some of the worst living quarters of this neat village. In the entire town, 15.6 per cent of the population had influenza during the outbreak, on this one street 22.6 per cent; of the families involved, the town showed 40 per cent infected, this street 43 per cent; but among the involved families 61 per cent in the town and only 47 per cent on this street contracted influenza. A survey, to be even approximately correct, as is herewith shown, should cover and include the entire district it is expected to represent. Percentages of conditions for large districts cannot be accurately estimated by partial compilations.

One of the chief purposes of a survey is to help the people who are locally concerned. The investigator loses no opportunity to offer helpful suggestions wherever needed. As the survey progresses the attention of the person who owns or maintains the unhealthful condition is attracted until he is convinced of the necessity of a change. Then the best practical needed improvement is explained to him, but no person should be asked or expected to make any change which obviously is beyond his powers to install or to maintain. People should not be asked or be obliged to institute any improvement which they actually cannot or will not properly conduct. Where people have not the financial or intellectual ability to equip and maintain the most desirable sanitary or hygienic improvements, some other solution of their problems should be reached. They should be made to realize the importance of the advanced steps and to go as far as possible, for it is the direction and not the length of the step which counts.

Scope of City Health Surveys

The general scope of a municipal survey outlined herein must necessarily be brief. The details should be worked out before the survey is undertaken, in order to promote efficiency and to prevent needless waste of time and overlapping of activities. As each factor is uncovered and studied, its cause and effect should be determined as nearly as possible, consistent with its relative general worth, and the correlation with other conditions be determined. Throughout the survey helpful hints are given to the people who need them and when the need is found to be urgent.

The municipal health survey could be conducted along the following general plan:

Introduction
- Brief historic outline
- Geographical location
- Geological formations
- Racial settlements and distribution
- General review of public health and physical efficiency
- Industrial developments

Vital Statistics
- Population, growth, and influencing factors
- Birth and death rates, giving trend and reasons
- Influencing factors and how to control them
- Racial characteristics of birth and death rates
- Reportable diseases, prevalence, and rates
- Methods of control and their effects

Child Welfare
- Prenatal influences, effects, solution
- Infant mortality, factors, causes, and solution
- Pre-school problems

School Children
- Statistics, distribution, effect of location upon schools
- Prevalence of diseases among school children, control
- Medical inspection
- School buildings and grounds

Communicable Diseases
- Statistics of outbreaks; sources and methods of control
- Public protection against disease
- Educational work done and needed

Tuberculosis
- Prevalence, factors, distribution, causes
- Local modes of transmission, house influences
- Dispensary effects, and community needs

Typhoid Fever
- Prevalence, transmission, protection

Venereal Disease
- Dangers, prevalence, prevention

Food Supplies
- Conditions of production and storage
- Adulteration and wholesomeness
- Degree of inspection and results
- Disposal of spoiled or poor foods
- Prevalence of diseases among handlers

Milk Supply
- Amounts, source, distribution, availability
- Safety and cleanliness, city standard
- Bacterial counts, causes, variations, trend

Water Supply
- Source, safety, quality, distribution
- Protection, control, results

Sewage Disposal
- Methods, proportion, distribution
- Safety, local effects, treatments of sewage

Garbage Disposal
- Methods, desirability, nuisances, control

Street Cleaning
- Methods of collection and disposal of rubbish

Personal Hygiene
- Standards of living and effects
- Overcrowding, housing conditions, tenementation
- Condition and use of yards and lots
- Parks and playgrounds

Industrial Hygiene
- Kinds, distribution, and sanitation of factories
- Occupational diseases, prevalence, and control

Industrial accidents, prevalence, and control
Sanitary improvements, and social welfare
Health Department
Development, methods of appointment
Divisions, efficiency and needs
Activities, methods, results obtained
Budget; distribution and needed changes
Recommendations

Rural Surveys Are Educational

Rural health surveys are essentially educational in aspect because it is the personal suggestions given at the time which are the principal factors of public benefit. At the same time, however, statistical data are obtained to show the actual conditions found. This information is needed for planning future campaigns and for preservation to be used at a later date for comparison with future records to show the results obtained.

For rural survey work automobile transportation is advisable. The investigator should be a medical man in order to diagnose diseases found, because in the country there is a much greater proportion of unreported or unrecognized diseases than in the cities. A public health nurse should accompany the investigator to give instruction in child welfare, prenatal care, cookery, and household economics where needed for the safeguarding of health. Besides the oral suggestions, the farmer's family should be supplied with public health literature. Only that which is apparently needed and will obviously be read should be distributed. A one page list of simple health directions, couched in local terms and relating to conditions which actually are of local importance, should be left at every house. Besides this, an assortment of more complete pamphlets should be carried to be left as indications warrant. These pamphlets should separately cover such subjects as the care of the baby, safeguarding the health of children, the care of sick persons, the contagious diseases, clean milk, pure water, care of foods in the home and for marketing, destruction of insect and animal pests, and similar subjects of local importance. Discretion should be used in choosing which literature should be left, just as in giving sanitary suggestions, even though obviously needed.

The information collected and the appropriate suggestions offered during the rural survey would probably include the following subjects: name, address, and size of family; recent births, deaths, and reportable diseases; foods marketed and address of market; schools attended; source, safety, and protection of water supply; means and safety of sewage disposal; protection of purity of streams; condition of barn with scoring of dairy; care of the milk and other marketed products; health conditions of employees; family habits of living; measures taken to guard against communicable disease; history of typhoid fever and dysentery, with detection of suspicious carriers.

Questionnaire surveys are the least expensive but the most unsatisfactory. A large number of conditions, industries, and communities may be investigated by this method, although the collected facts are always open to dispute, as the answers are submitted by persons who are personally interested and therefore purposely or unconsciously biased. A list of questions sent by mail to a large number of persons will usually be answered by only those most interested. The returns may equal only one-fourth or one-tenth of the inquiries. The persons answering, being most interested, usually have the best conditions, for through their previous interest attention has been given to the points in question. The persons who do not reply have usually the worst conditions and are the ones most in need of the help which would result from the survey if they had had the forethought and had taken the time to reply. These persons, also, are usually the ones needing personal interviews.

A questionnaire survey, to be most effective, must be brief in its number of questions, and these must be carefully worded to produce the greatest amount of needed information, but be so clearly stated that but one interpretation can be given them. A long list of questions will be cast aside where a short list of pointed questions will be answered. A few important and definite replies from a large number of persons are of much greater value than a long list of questions answered by but few.

In a consideration of the replies to a questionnaire much depends upon the definiteness of the questions and the character of the persons interrogated. The viewpoint of the other person must be considered and due allowance be made. Even then the answers collectively apply to the writer's and not to the general average of all persons questioned or involved. Much valuable information can be obtained by this kind of a survey, but the answers are of greatest use when considered separately with a view of offering suggestions or making separate reports.

Study of Social Conditions

Many social and industrial conditions lend themselves separately as available for desirable surveys. Such surveys are for the express purpose of bettering existing conditions in the most practical and economical way. Completeness is essential and the survey must be sufficiently representative before deductions or recommendations

can be made. Before drawing his designs for a hospital, an architect studies the local surroundings and needs and then he surveys the experiences gained from the construction and operation of other hospitals, and adopts the details needed to fill the particular local requirements. A sanitary engineer must very carefully consider all local conditions before recommending a water purification or sewage disposal system if he expects complete success. His study is a sanitary survey of the points concerned in his undertaking and is a necessary part of his work. If such a survey is justified, health surveys in practically every branch of public health work are desirable and justifiable. These surveys may not be as extensive and expensive as house to house canvasses, but should be sufficiently detailed so as to show the true conditions and needs in their relative statistical importance and in their correct concrete perspective.

A study of conditions may be made by a correlation of statistical data, but a survey requires a certain amount of field work. If the subject for consideration is tuberculosis, a compilation of the case and death reports will indicate the prevalence of the disease and a spot-mapping of the cases will show their distribution and general locations involved, together with any tendency to group around industrial centers. The map will also indicate the approximate locations of needed dispensaries as well as of educational centers. But before a maximum result can be obtained, a district survey is needed to indicate local sanitary needs, the standards of living in the involved areas, racial and class characteristics, and the influencing factors of industrial employment. A canvass of the persons with tuberculosis will further elucidate the problems of prevention and control and will add much to the general survey. It will show the particular class of work which may have induced the development of the disease and also frequently will uncover unknown and uncontrolled cases of the disease.

A canvass of persons with tuberculosis by house visits will throw much light upon the factors and results of infection. It should be supplemented by clinical examination of every person in each involved family. The employment of each is studied with a view of discovering influencing factors and opportunities for transmission to other persons. In obtaining the address of the alleged employment it is important to learn the work done during the past several years, as the most recent may have had no effect upon inducing the development of the disease. It is not sufficient to know that the man worked in a machine shop, but what particular shop, the specific kind of work he did, the dates of beginning and stopping such work, and his own physical condition when he began the work should be learned. The names of other tuberculous persons in the mill should also be learned if possible. Fortified with this information, the investigator calls at the mill to determine every factor which could have been responsible for the tuberculosis; particular study is given to the other employees, the conditions of dust, of ventilation, of drinking cups, food supplies, general cleanliness, and habits of spitting.

Perspective is a particularly valuable adjunct to a survey. For instance, in the study of housing conditions, tenement factors form a vicious circle; and the landlord is not wholly to blame. The chief causes of unsanitary living conditions among our lowest classes—which form a truly dangerous condition for the general public in the production and transmission of disease, immorality, and degradation—may be written, according to cause, as: the penuriousness of the landlord; shiftlessness of the tenant; inherited instability of purpose; racial or social ignorance; disregard for people or property, developing from arrogance of superiors and their desire for large returns from uncertain investments; and the parsimonious habit of the property owner or his agent, who may be influenced by the absolute disregard and disrespect of some persons for the property of others. A housing survey in almost any city will show that these conditions obtain and that an improvement must be a general concession by all persons concerned, with a realization of the purposes and standards of the others. So in making suggestions in this, as in any other survey problem, the perspective must be studied to determine where the lines of force may coincide to an effective result.

Industrial Surveys Important

As applied to an individual establishment or class of industry, a health survey is a developed expression of a sanitary inspection. An inspection reveals the faults and needs; a survey correlates these facts and reveals influences.

Industrial establishments frequently need health surveys. Hygienic faults in industry are often commercial losses, decreasing the output and being a direct cause of labor unrest. A detailed survey may clearly indicate these economic and efficiency losses and show how they may be corrected. Every factory does not need a critical inspection, and in many in which a sanitary survey would be of benefit it would be difficult or impossible to prove the wisdom of the expenditure on the basis of expecting it to be more than

counterbalanced by the increased factory output. Employers are coming more and more to learn that the contentment of the employee is something to strive to maintain, and that the health of labor is worth considering. One factory manager told me that formerly when they held a grudge against a man he would be put at the emery wheels, where he would soon go down and out, but that now they conserved their experienced, trained help, considered now as worth retaining.

Industrial physicians, those who are employed in whole or on part time to care for the needs of the workmen, can and should make careful health surveys of their industrial plants or should use their influence to have the work done. Recommendations which are given the employers should be followed up by the factory physicians, who should find out what is being done and why. The effect of the alterations should be later reported to the person who made the recommendations and, if the improvements are not adopted, the reason for this inaction should be reported. It is not sufficient for an industrial physician to spend his entire energy in conducting a clinic for the sick and injured. Efforts should be taken to learn the causes of sickness and injury and to check or eliminate them. This is but a part of his opportunities for hygienic improvements. There are many other industrial factors which are not potent enough to produce sufficient sickness or accident to induce the workman to seek a physician, but are great enough to cause physical discomfort and to decrease personal and factory efficiency. These influences are determined by a close study of all the conditions under which the employees work.

Factors Brought Out in Survey

In industrial health surveys of individual factories cognizance is taken of every factor which directly or indirectly affects health. These factors include the conditions of ventilation, dust, lighting, water supplies, toilet accommodations, overcrowding of machinery, accidents, use of mill substances which may be harmful to workmen, habits of eating, provisions against fire and explosions, opportunity for and instruction in first aid, and social habits of the employees.

A factory health survey is made in conjunction with the investigation of industrial conditions affecting the production of some specific disease, as tuberculosis or one of the industrial poisonings, when one special mill or all the factories are inspected. Or an investigation may be made of one or more factories, considering them separately, for the purpose of studying every possible influence the factory can have upon the health of its employees and the freedom from the cause or transmission of disease by its product. In such considerations a factory is any place in which a number of persons are employed and in which any commercial article is manufactured or handled.

A detailed and carefully conducted survey of all health conditions will enable the health officer and factory physician intelligently to use their time and resources to the best advantage.

THE STOCK-TAKING OF GREAT BRITAIN'S HEALTH

BY OUR LONDON CORRESPONDENT

The Blue Book containing the report of a commission appointed during the war by the British Ministry of National Service to investigate the results of the medical examination of recruits under the Conscription Act has just been published. In this report is exhibited the result of a stock taking of the manhood of the British race at home for military purposes and it provides gloomy reading. It appears from an investigation of the figures given that 10 per cent of the men in Great Britain under forty years of age were found to be of such bad physique as to be totally and permanently unfit for any form of military service. These figures are disheartening and, if taken at their face value, would seem to reveal a degree of racial degeneration degrading in a country which has always prided itself on its public health service.

However, if these figures be probed closely, it will demonstrate the fact that there is room for the supposition that they constitute almost a slander on the nation. They are based on the medical examinations held between November 1, 1917, and October 30, 1918, or during the period when all the available manhood of the country was being swept into the army. Before that time millions of young men had donned khaki and their satisfactory physique is not denoted in these figures. In addition, of those who remained in civil life, the able bodied men left to carry on essential trades were not all examined. It is perfectly clear that the figures which show 10 per cent of totally unfit are misleading, and it also seems certain that if all the men of military age in Great Britain were examined now, after the ravages of war, much less depressing results would be obtained.

Still, when all has been said that can be said in extenuation of the figures in the report, it must be confessed that their significance is the reverse of reassuring. The resources of the man power of this country have been lavishly wasted and it is due to the circumstance that Great Britain has been an industrial country longer than any other and has allowed her population to live under bad hygienic conditions. Of recent years it has been personal and domestic hygiene at the root of the trouble, for public health in a broad way has been well looked after. It is now more a question of defective and inadequate housing than of anything, and, to a lesser extent, of trades in which insufficient regard is paid to the health of the worker. The object at the present time is not to point to the degeneracy of our industrialized nation, for this has been by no means proved, but rather to pick out certain particular evils and grapple with them energetically.

Miss Julia Lathrop, head of the Children's Bureau, has been formally requested to assist the new republic of Czecho-Slovakia in the organization of child welfare work along the lines followed by the Department in the United States. Her duties will keep her abroad until July 1.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M OLMSTED, R. N., *Editor*

THE ATLANTA CONVENTION

THE first Biennial Convention of the three greatest nursing organizations in the world ended in Atlanta on April 17. It was the twenty-fifth annual meeting of the National League of Nursing Education, the twenty-first annual meeting of the American Nurses Association, and the seventh annual meeting of the National Organization for Public Health Nursing. The nurses, numbering more than three thousand, discussed the present and future outlook of nursing with a spirit of enthusiasm, democracy, and business-like efficiency. For nine days meetings were held —morning, noon, and night—in the Tabernacle and the Auditorium, but, to the surprise of some of the Atlanta folk, there was no falling off in attendance. The delegates and visitors were there to learn and they steadfastly refused to think of the movies, the shopping district, or the charming country drives.

Although each of the associations had its own sessions, there were joint meetings in which they discussed matters of interest to all. In one of the general assemblies the Sheppard Towner Bill was indorsed. In another, the request of the American Legion for a cash bonus to be given by the Government to every participant in the great war, regardless of the length of service, was discussed, and resolutions were passed to the effect that the nurses are not in sympathy with the movement, that the men went into the War because they wished to be of use to the country, and not because of any desire for pecuniary reward. The associations are of the opinion, however, that those who were disabled in service should be given extra assistance.

For some time the National Organization for Public Health Nursing has had offices at 156 Fifth Avenue, New York City, and a branch office in Chicago. At the Convention in Atlanta, it was decided that joint offices of all three national nursing bodies should be established in New York City. This is a great advance and will, without doubt, result in better cooperation and greater efficiency in the future of the whole nursing profession.

Miss Katherine Tucker, president of the National Organization for Public Health Nursing, and superintendent of the Philadelphia Visiting Nurse Association, presided over the meetings of the public health nurses. The by-laws of the National Organization for Public Health Nursing were revised, the most important change being the striking out of the voting-by-mail privilege. This was accomplished after a very spirited discussion with arguments that showed considerable determination.

The rapid development of industrial nursing in recent years led to the formation of a separate section under the National Organization for Public Health Nursing, with the appointment of officers and the passage of resolutions. Separate sections were also formed in School Nursing, Child Welfare, and Tuberculosis.

The National Organization for Public Health Nursing, the only nursing body which admits lay members, included in its program a session for non-professional members, devoted to public health nursing administration. Special emphasis was placed on the need and proper management of nutritional clinics, publicity aids in public health nursing, newer fields of public health nursing, rural needs and rural problems, the protection of school children, and the recruiting of student nurses for the training schools.

The next convention will be held in Seattle in 1922, whose "booster delegates," vowed that Seattle could surpass any other convention city.

Miss Edna Foley, superintendent of the Chicago Visiting Nurse Association, was elected president; Miss Elizabeth Fox, director Bureau of Nursing, American Red Cross, Washington, D. C., first vice-president; Miss Jessie Marriner, Alabama State Supervising Nurse, second vice-president; and Miss Olive Chapman, director of nursing in the Mountain Division of the Red Cross Section, secretary.

RED CROSS PUBLIC HEALTH NURSING

By STELLA FULLER, R.N., Central Division, American Red Cross, Chicago, Ill

THE first step in the Red Cross Health program was the extension of the public health nursing service as now organized, and in operation under the Department of Nursing. This is a natural outgrowth of the work of the town and country nursing service begun some years ago by the appointment of a few score of visiting nurses for duty in rural communities.

The American Red Cross carries on this work through its Chapters and through affiliation with the nursing service of many local organizations; for example, boards of health, boards of education, county commissioners, industrial concerns, and public health nursing organizations maintained by private philanthropy or by a combination of public and private funds.

The Work Is Supervised

The Chapter or organization decides what work the nurse is to do; what the plan for the development of the work shall be; how it is to be financed, and all similar policies. The Bureau of Public Health Nursing maintains certain standards for the professional conduct of the work and, through correspondence, monthly reports from the nurse, and supervisory visits, oversees the Chapter work and its professional status. This supervision is done by the Division Director of Public Health Nursing, who tries in every way to advise the nurse and to assist her, should any difficulties arise.

It goes without saying that visiting nurses appointed by the Red Cross are at all times expected to act in full cooperation with other health agencies, and indeed the policy of the National office calls for the appointment of these workers only when other local organizations are not already providing such service. In order to meet the demand for specially trained nurses for this work, scholarships have been provided for nurses

Formerly the fight against disease was waged only upon its strongholds in congested districts. "Complete organization to cover the "whole field" is now the slogan, and health promotion is now directed against rural as well as urban problems.

The Red Cross nurse is ready for every emergency. This visiting nurse is seen making her daily rounds.
The young mother, perhaps untrained in the care of her children, welcomes the guiding hand of the public health nurse.

Demonstration is more effectual than words.

returning from war service, courses of instruction in this new science have been encouraged and used, and a number of chapters have liberally financed the preparation of nurses for this work. The Red Cross, therefore, counts on the development of a trained personnel to meet the greatly increased need for Public Health nurses. This indispensable foundation of expert professional service, coupled with the financial resources of an army of volunteers which the Red Cross can command, makes possible a powerful contribution toward the advancement of the public health work of the country to hitherto unparalleled achievements.

Service Is Many Sided

There is much variety in the work. A few of the nurses ride horseback over the mountain trails in the Kentucky mountains to care for their patients. Four or five go on snowshoes through the northern forests to the scattered homes and schools. Some with automobiles work up traveling clinics to secure eye, nose, throat, and dental treatment for their school children. Others are aiding in the Americanization programs in their daily visits in the homes of immigrant miners and laborers. Still others are helping to improve conditions for the workers in the Southern cotton mills, where they are employed as industrial nurses. Many are waging the tuberculosis battle and helping to secure legislation for county sanitoriums. Some of them give nursing care to the sick and many, in addition to their daily visiting, spread the knowledge of public health by addressing meetings, working up exhibits, and assisting in all kinds of campaigns for community improvements.

The Department of Nursing of the Red Cross, through its class instruction, is helping women and girls to prepare themselves to give nursing care in their own homes and to learn something about food in its relation to health. The oldest and surely the most popular profession open to women is that of wife and mother; yet little if any systematic training is given women for home making. Young men learn scientific farming at agricultural schools; medical students spend years in preparing for a highly specialized profession; business men serve long apprenticeships before they are entrusted with their first "big deal," but the majority of girls marry with little conception of their future duties and practically no training to help them meet the heavy responsibility of wife and mother.

Courses in Home Hygiene

Knowledge of proper nutrition, of sanitation and hygiene and of elementary nursing procedures is now recognized as necessary for the maintenance of high health standards. Thousands of women have taken the Red Cross courses in home hygiene, the care of the sick, and in home dietetics. Through such training they have learned to shield their households from preventable disease, and, by intelligent sick-room methods, to hasten the recovery of their sick. For pupils desiring the Red Cross certificate in home hygiene and care of the sick, the course consists of fifteen lessons of about one and one-half hours duration each. One-half of each lesson period is ordinarily devoted to theoretical work and demonstration; however, if a certificate is desired, an examination consisting of both written and practical tests will be given at the end of the course.

A diet intelligently selected, prepared, and served is one of the chief factors in promoting health and efficiency. Great advances have been made recently in the science of dietetics or food in its relation to health, and the Red Cross wishes to put elementary principles of this knowledge at the disposal of every woman and girl in the United States. Malnutrition has brought about the death of more babies and mental retardation of more school children than perhaps any other cause.

The Red Cross course in home dietetics offers instruction in the fundamental principles of proper nutrition for the well and the sick. This course is taught by a Red Cross dietitian who is a graduate of a home economics college and may be incorporated as a part of school work. It consists of fifteen lessons. These are only a few of the activities of the Red Cross whose mission is mercy, kindness and charity.

KANSAS CITY NURSES MAKE REPORT

The Visiting Nurse Association of Kansas City has just issued its twenty-eighth annual report which shows that the twenty-six nurses of the Association made in the last year 42,732 visits to 7,337 patients. The Association is the only agency in Kansas City organized to give bedside care by graduate registered nurses to the sick in their homes, and to instruct the families in hygiene and nursing.

It is the purpose of the Association to make its service not only to minister to the sick, but also to make it a great factor for public health.

Total receipts of the Association for the last year were $36,301.71, and disbursements amounted to $29,394.01. The Organization had an endowment fund of $10,968.73 at the beginning of this year.

The officers of the Association are: Mrs. James E. Logan, president; Mrs. George T. Moore, first vice-president; Mrs. W. H. Chapman, second vice-president; Mrs. F. D. Whiting, secretary, and Mrs. F. P. Burnap, treasurer. Miss Anna M. Barr is superintendent of nurses.

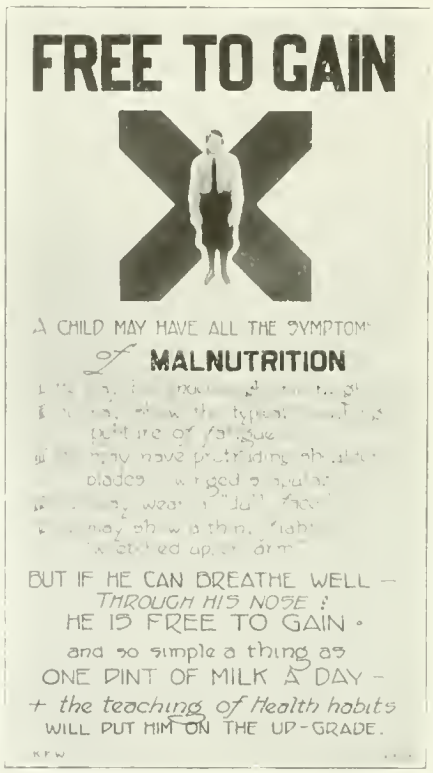
Human conduct tends to become not only more intelligible but more amenable to control as we view it in the light of an understanding of the instinctive mainsprings of action.—Ordway Tead.

NUTRITION CLASSES IN THE CHICAGO SCHOOLS

By MRS. IRA COUCH WOOD, Director, Elizabeth McCormick Memorial Fund, Chicago

Aside from all the dramatic incidents of the great war and the profound effect made upon the Nation by our share in the world conflict, several conditions directly affecting the welfare of the people in peace were emphasized by the war time program. Conspicuous among these was the poor showing made by our young men when measured by the physical standards of the Army, and the large percentage who were rejected for physical defects. No one doubts that if such tests had been made of our young women, even a greater percentage of physical defects and inefficiency would have been disclosed. These conditions found among the men of draft age were emphasized and partially explained by the weighing and measuring tests given during the war time program of the Children's Year, which showed such a large percentage of children under weight and handicapped by so many and such serious physical defects.

Thinking people have not been able to rest under the implication that the homes and the schools of this great democracy were somehow failing to produce men fit for the defense of the Nation in her hour of need, and many resolved that the health standards of peace should be at least raised to meet those of war. People wondered, many of them perhaps for the first time, why physical as well as mental and moral fitness should not be expected of the citizen as well as of the soldier. The challenge of the war, therefore, called into action many a supine health department in city and state, and started parents and educators, physicians and nurses, to work to rescue the children from a future of physical unsoundness, and to set their feet upon the road to health, happiness, and efficiency.


FREE TO GAIN
A CHILD MAY HAVE ALL THE SYMPTOMS
of MALNUTRITION
BUT IF HE CAN BREATHE WELL —
THROUGH HIS NOSE !
HE IS FREE TO GAIN •
and so simple a thing as
ONE PINT OF MILK A DAY —
+ the teaching of Health habits
WILL PUT HIM ON THE UP-GRADE.

The signs of malnutrition are evident enough and seen all too frequently once one begins to observe them.

The Elizabeth McCormick Memorial Fund of Chicago, having devoted itself to some solutions of the health problems of children since its foundation in 1908, carried on the program of the Children's Year in Illinois as its war service. Whatever may be said as to whether or not the weighing and measuring tests of the Children's Year were of any value as scientific records, they served as an efficient means of carrying educational propaganda throughout the country. Two results of this propaganda have proved of the greatest value: (1) People generally learned to their immense surprise that there are standards of physical development to which children should measure up; and (2) the tests proved that the problem of physical unfitness is not one of poverty, but of ignorance. They showed that the children of the rich and well-to-do were quite as undernourished and defective as the children of the poor. The answer to the problem, therefore, was to be education, and not economic revolution, as many had feared and prophesied.

The important question now became—what form should this education in health take to be most effective? This question had been partly answered, it is true, by the educational health programs already begun in some places through infant welfare centers, medical inspection in schools, public health nursing service in city and rural districts, medical and dental dispensaries, anti-tuberculosis propaganda, open air schools, and other agencies.

The Elizabeth McCormick Memorial Fund had made its contribution to these beginnings by maintaining twenty-three open air and open window school rooms in Chicago, and had proved what the triple program of fresh air, good food, and rest can accomplish. The majority of the anemic, or pre-tuberculous children, as they were formerly called, could in these classes be brought up to a normal physical standard, and most of them were enabled to make more rapid progress in their school work than would the children in the average school room. It was still true, however, that some children failed to gain sufficiently, and others lost their gains after leaving the particular school.

Aroused by the findings of the Children's Year for the pre-school age, and continuing its interest in the physically handicapped child, the Memorial Fund undertook in the winter of 1919 to estimate the amount of malnourishment among pupils in the Chicago schools by weighing and measuring ten thousand children. The relation of weight to height is the best test yet available to determine the physical development of children. Of the 10,000 chlidren weighed and measured, 5,045 were carefully tabulated and 40.5 per cent were found to be 7 per cent or more under weight. Dr. Thomas D. Wood's table was used, the basis being the average weight for height—not age. These schools were typical of different sections of the city, of different racial groups, and of varying degrees of prosperity in the several neighborhoods. The study included children from four years of age up, and in all grades from the kindergarten through the eighth grade. The percentages ranged in different schools from 16.2 per cent of the children showing undernourishment in one school in the stock yards district, to 57.7 per cent in a comfortable, semi-suburban neighborhood.

After these tests had indicated the seriousness and extent of the problem of malnutrition in Chicago, the attention of the Memorial Fund was directed to the work of Dr. W. R. P. Emerson of Boston, through a talk given by him at the International Child Welfare Conference in Washington last spring, which was illustrated by pictures of the children he had helped. The practical and intensive methods of the nutrition class, as developed by Dr. Emerson, seemed to be the answer to some of the unsolved problems of most of our health programs. The Memorial

Fund, therefore, brought Dr. Emerson to Chicago to speak at the sessions there of the International Child Welfare Conference, and his report and pictures made a profound impression upon educators and social workers.

Under Dr. Emerson's direction, nutrition classes were instituted in several Chicago schools last fall, and in November Dr. Emerson and his chief nutrition worker, Miss Mabel Skilton, came to Chicago and conducted a two weeks training course for forty-five students. This course gave great impetus to the work, and demands by different groups for nutrition classes have steadily increased. The Elizabeth McCormick Memorial Fund has added worker after worker to its staff to meet this demand, until now it has eight nutrition workers and one medical adviser.

These nutrition teachers for the most part are dietitians, as it happens; nurses would have had equally good educational background, but they have not been obtainable. All the workers have had sound preliminary education, have taken courses in food values, and social service, and have been given special training in the conduct of nutrition classes. These methods of Dr. Emerson, while they are simple, as fundamental principles always are, are founded on sound psychology and a sympathetic comprehension of child nature, and they demand special training and fitness on the part of those who are to use and develop them. Absolute accuracy is essential on the part of the worker; also painstaking attention to the smallest detail, and a great enthusiasm for positive health.

This is a typical case of malnutrition, exhibiting the slouching "posture of fatigue."

The Work Is Cooperative

In Chicago the Elizabeth McCormick Memorial Fund has had the approval of the Board of Education and the superintendent of schools in establishing nutrition classes. These are never started in a school without the complete and sympathetic cooperation of the principal, who invariably requests the Memorial Fund to start the work among the pupils. All the children in the school are weighed and measured, and those *habitually* 7 per cent under weight for height, who have also the unmistakable signs of malnutrition, are selected for the classes. The usual signs are—circles under the eyes, bad color, winged shoulder blades, frequently spinal curvature, sunken chest, prominent abdomen, stringy forearm, slightly flexed knees, and general "fatigue" posture. These signs for the most part escape the notice of the school physician and are not "diagnosed by the stethoscope," to quote Dr. Emerson, as the child's heart and lungs may be sound. Therefore, the first move after the weighing and measuring, is to give every child a complete physical examination, stripped, with the permission, of course, of the parents, and their presence at the examination if by any means this may be secured. The findings are checked off by the nutrition worker, with the parents' observation, on a form prepared by Dr. Emerson, which is much more detailed and specific than such forms usually are. This form is of great value in calling the attention of the examining physician, the nurse, or the nutrition worker, to the small points to be noted. After the examination, a large chart, 19 by 24 inches, is prepared for each child. It carries all the particulars of age, height, weight, average height for age, and average weight for height, pounds and percentage under weight, and has the average rate of gain carefully plotted and indicated by a black line. The child's actual weight is shown by a red line and large red dots, marking his gains or losses in the climb to normal standard. Red stars at the top of the chart indicate the mid-morning and mid-afternoon lunches, and blue stars show the rest periods. A gold star marks the chart of the child who has gained most weight during the week. This "color scheme" is important as appealing to the child, and makes the chart more graphic to his parents.

One of the cleverest devices of Dr. Emerson's to stimulate the competitive spirit among the members of the class is placing the charts in the order of gains in weight, and seating the children in the same order, each opposite his chart. The presence of the parents is a vital part of the program, and they are seated in the same order, each behind his own child. Consider the effect on the pride of the parent who, with his child, sits week after week at the foot of the class! This is a stronger argument than tongue or pen could urge, and after a short experience of this kind the physician's orders—previously unheeded perhaps—begin to be followed. Tonsils and adenoids come out with parental approval, the "movies" are given up, coffee and tea are discarded, and the diet changed to bring the child (and his parent) to the coveted position at the head of the class!

The rate of gain indicated on each child's chart is based on the average gain of the school child, which is one-half a pound a month. In figuring averages and percentages of under weight the Boas and Burke table of weights and measures is used. It is expected that the undernourished children in the nutrition classes will gain at least one-half a pound a week, or at the rate of 400 per cent above the normal gain. Many of the children in the classes far exceed this expected result and gain as much as a pound to a pound and one-half a week.

These boys show all the signs of malnutrition. They are under weight for height, have winged shoulder blades, sunken chest, prominent abdomen, and slight spinal curvature.

The classes meet once a week, which has been found to be the best interval. The children are weighed by the nutrition worker and the charts filled out before the physician arrives to conduct the class. Each child gives the nutrition worker a forty-eight hour record of his activities and the exact amount of food taken during the forty-eight hours. This is figured in calories and the children not only do this easily but greatly enjoy the reckoning. The nutrition worker goes carefully over this record, checking the total number of calories taken each day, the average of which is placed at the bottom of the nutrition chart. Special points are noted which must be called to the attention of the physician or the child's parents. The physician and the nutrition worker spend comparatively little time with the children who have gained at the proper rate, except to approve and encourage them in their efforts, but give careful thought and care to the children who have not gained.

This girl will respond readily to the methods of the Nutrition Class as soon as her physical handicaps of bad tonsils and adenoids have been removed.

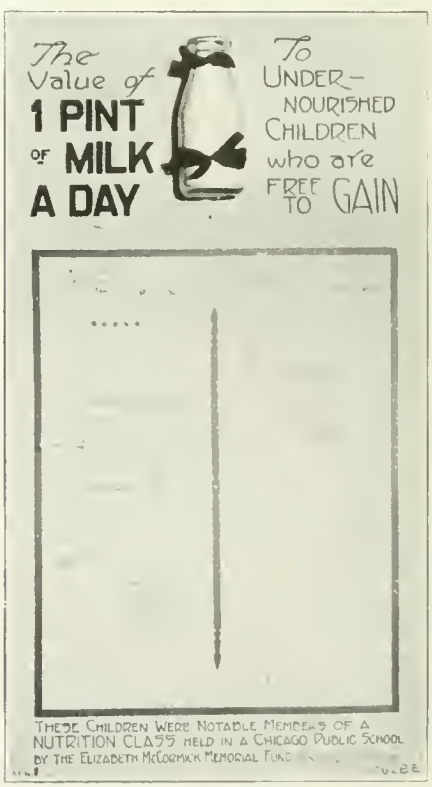
The nutrition worker suggests the proper diet for the children, including, of course, an insistence on milk, cereals, fresh vegetables, and fruits; but the foods with high caloric values are the ones most needed by the undernourished children who are to be started on the up-grade to health. Dr. Emerson's advice has proved eminently sound in recommending that racial prejudices be considered in prescribing foods, and that the line of least resistance be taken first in retaining everything that is good in the diet and suggesting additions to it rather than overturning the whole family scheme at once. It is necessary to win over the parents if a real readjustment in health and food habits is to be accomplished. Tact and persuasion will succeed, when backed up by the gains of the children, where argument and threat will fail completely.

Dr. Emerson has proved that for the undernourished child five smaller meals are better than three heavy ones, consequently a part of the program for the children is a mid-morning luncheon of milk and a graham cracker, or a sandwich of bread and butter or peanut butter, and another lunch in the middle of the afternoon. Lunches of this character do *not* take away the child's appetite for the noon meal; if sweets are given, however, this deplorable result will occur. The mid-morning and mid-afternoon luncheons should be followed by a rest period of three-quarters of an hour to an hour in the morning, and twenty minutes to one-half hour in the afternoon. These rest periods are of the greatest importance in the whole scheme and are especially valuable for the nervous, overstimulated American child. It is encouraging to know that once a child has been brought up to normal weight he tends to maintain his gains and develop normally, because nutritional balance has been secured, physical defects removed and health habits have been established.

Social Conditions Investigated

After the nutrition worker has absolutely exhausted her intelligence and ingenuity in discovering the cause of lack of gain, or the positive loss of weight on the part of a child, and after visiting the home to discover what social conditions may be affecting him, without finding a solution, the physician is then called upon to give the child a reexamination, in case something may have been omitted in the first survey. Too much cannot be said for the absolute necessity of having a sound medical background for all of the nutrition work because, while the normal standard of weight and health is usually attained by simple means, the causes of malnutrition may be obscure, and only medical science can then discover them.

Dr. Emerson's painstaking and scientific experience of twelve years' work with children has made him assign the following reasons for malnutrition: (1) Physical defects, especially obstruction of the breathing passages; (2) Lack of home control, the disorganized family, both rich and poor being examples; (3) over-fatigue; (4) insufficient food and faulty food habits; (5) bad health habits. These reasons, well founded as they are in wide experience, are certainly a challenge to all our preconceived notions as to the causes for undernourishment of children, and they suggest new and encouraging methods of attack on the problem.

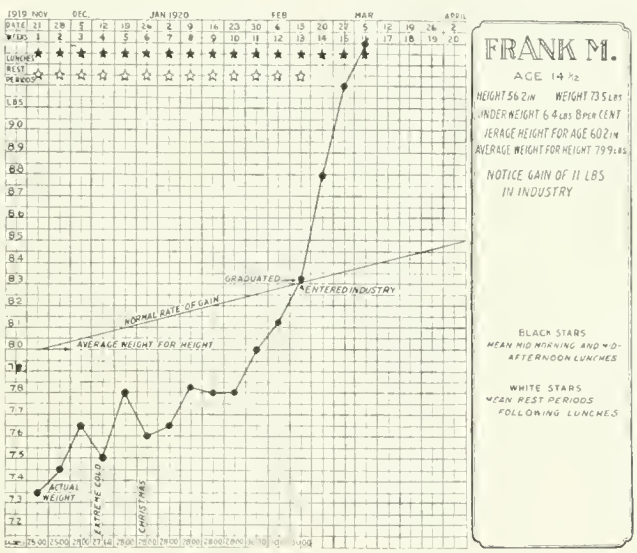

The Value of
1 PINT
OF MILK
A DAY
TO UNDER-NOURISHED CHILDREN who are FREE TO GAIN
THESE CHILDREN WERE NOTABLE MEMBERS OF A NUTRITION CLASS HELD IN A CHICAGO PUBLIC SCHOOL BY THE ELIZABETH McCORMICK MEMORIAL FUND

This chart shows what a pint of milk a day, plus general health education, will accomplish.

At the present time the Elizabeth McCormick Memorial Fund is maintaining nutrition classes in eight elementary public schools, the Board of Education providing a physician and three visiting teachers to maintain others. So

interested have many of the school principals become in the gains in weight and increased mental alertness of the pupils in the nutrition classes that in some cases they excuse the children at 10:30 to return home for the mid-morning luncheon and rest period, the children returning for the short afternoon session. For the children in some of the other classes milk is provided from a special fund, and the rest period is taken at the school. When the school can thus cooperate with the home in the physical and mental development of the children, an ideal situation is created.

Very interesting nutrition classes are maintained in three high schools of Chicago by the Memorial Fund. These classes were started by three physiology teachers who heard Dr. Emerson and were inspired with the almost unheard of determination to demonstrate their science and test the practical result of their teaching through the physical development of their students. Complete physical examinations were given to these young boys and girls, and the pictures presented of physical deficiency were truly appalling. The children in these classes come from comfortable homes for the most part, where the parents are able to give their children the educational opportunities the high school affords. Some of them come from very well-to-do families, but the physical condition is uniformly poor, the underweight for height in many cases ranging from 18 per cent to 33 per cent in different individuals. These young people are now making satisfactory gains and have sufficient stamina and determination of purpose to carry out the program prescribed for them in spite of the difficulties that arise, sometimes from lack of parental cooperation, frequently from the overcrowded school program, the brief period allowed for the noon lunch, and the work that must often be done at home in addition to the school requirements.


Individual Weight Chart
FRANK M.
AGE 14 ½
HEIGHT 56 2IN WEIGHT 73 5 LBS
UNDERWEIGHT 6 4 LBS 8 PER CENT
JERAGE HEIGHT FOR AGE 60 2 IN
AVERAGE WEIGHT FOR HEIGHT 79 9 LBS
NOTICE GAIN OF 11 LBS IN INDUSTRY
BLACK STARS MEAN MID MORNING AND 4 O AFTERNOON LUNCHES
WHITE STARS MEAN REST PERIODS FOLLOWING LUNCHES
GRADUATED
ENTERED INDUSTRY
NORMAL RATE OF GAIN
AVERAGE WEIGHT FOR HEIGHT
ACTUAL WEIGHT
ZERO THE COLD
CHRISTMAS

A child who has come up to the normal standard tends to keep his weight and continue to gain, if given a chance. The chart of a boy who went over the top in thirteen weeks at Arden Shore and was dismissed to go to work. His employer, who had become interested in the physical welfare of these boys, provided for him milk and occasionally a raw egg at 10 a. m. and 3 p. m. See the result of such interest! A future citizen has been put on the road to health—industry has gained an efficient worker.

Two classes are maintained by the Memorial Fund in a private school in a most favorably located suburb, where the parents are more than well-to-do, and of an intelligent —not to say intellectual—group, and yet where 25 per cent of the children were found to be under weight and malnourished. One class is maintained in a private home where the children have had every social and educational opportunity that wealth can afford, but where the percentage of malnourishment also ran high. This class has been maintained to emphasize the fact that the whole movement for the health of children should be educational and not charitable. Classes are being started among children on the lists of the United Charities, pensioners of the Juvenile Court and in one hospital dispensary.

One of the most interesting pieces of work in which the Memorial Fund is cooperating is that now being carried on at the Arden Shore Camp at Lake Bluff, Ill. This camp is usually maintained only in the summer, for mothers and children from our congested districts in Chicago, who spend a couple of weeks on the shores of Lake Michigan. The Board of Directors, however, was persuaded by the Memorial Fund to open certain of the buildings for the winter and take fifty boys at a time, selected from those coming to the Employment Certificate Bureau maintained by the Board of Education, to secure their working certificates. These children, the product of the homes and schools of the city, are many of them found to be very seriously handicapped by physical defects, and so large a percentage of undernourishment that they would not last more than a few months in industry. According to the wise provision of the Illinois Child Labor Law, their certificates must be refused, but this refusal offers no adequate solution to the problem, because the children return to the same home conditions and lack of care, the same poverty and ignorance that created their disabilities. Arden Shore Camp offers the way out of the maze to these boys, and many are eager to accept it. Before being sent to the camp the boys are given a complete physical examination by the Medical Director of the Employment Certificate Bureau. As far as possible, the physical defects are removed or relieved, so that the boys are free to gain. The Board of Education provides a physician who visits the camp once a week, and two teachers, one of them in charge of vocational work. The Arden Shore Association has raised sufficient funds to provide housing and administrative force for the camp, which includes a superintendent, supervisor for the boys leisure hours, a graduate nurse, a housekeeper, a cook, and one outside man. Dr. Emerson's program is followed to the letter, and the boys return in periods ranging from four weeks to three months, made over in a fashion that seems almost miraculous. A number of business men have become interested in this project of saving boys for a life of productive industry, and one employer was so concerned lest the boys he took into his service should lose their gains made at the camp, that he continued to provide the mid-morning and mid-afternoon glass of milk, with a few minutes of rest following, with the astonishing result in one case that the boy gained eleven pounds in three weeks in industry.

Interesting as is this experiment, the Elizabeth McCormick Memorial Fund is convinced that the place for the nutrition class is in the school, where the children naturally congregate, where parental cooperation can be most easily secured, and where a system of medical and nursing inspection should be adequate to have physical defects removed. In the school the nutrition class has a chance of being considered a part of the educational curriculum

and to take its place by right as more important than even the three "R's."

We believe the class method of teaching health and nutrition to be valuable for the following reasons:

(1) It secures the cooperation of the parents, vitally necessary if results are to be permanent, in a simple and effective way.

(2) It economizes time of all concerned by bringing parents to the center, and minimizes the necessity for home visiting.

(3) It introduces a wholesome spirit of competition among the children.

(4) It pools the experience of all the families for the benefit of each.

(5) It provides a means, through the graphic charts, of judging the development and gain of the individual child.

(6) It removes prejudices and fears of parents and children through exact knowledge of results obtained, and convinces in a moment where hours of arguments have often failed.

(7) It provides a method where children may be made well in their homes without adding to the family budget.

(8) It suggests a means whereby the educational, medical, and nursing departments of the school may cooperate to promote the health of the child, with no prohibitive expense.

Dr. Emerson has designated the Elizabeth McCormick Memorial Fund as a center in the middle West for the distribution of his literature, and demonstrations of his methods of conducting nutrition classes. He will himself be in Chicago several times a year to conduct training classes for nutrition workers, assisted by members of the staff of the Memorial Fund. The latter has just completed a course for forty public health nurses from the School of Civics and Philanthropy, and a new course under Dr. Emerson will start May 3.

Nutrition classes for children are of special interest to nurses as a constructive social movement for health, and as offering a new field for nursing service. It is work that demands rather a new point of view for nurses, however. Tuberculosis nursing, though health is the aim, is a campaign against a disease. In school nursing, also, the aim is health, but there is a definite set of foes to fight. In this type of nursing the aim is a nutritional balance, and it is necessary to have definitely in mind the normal child into which the underweight one should be developed by hygienic measures. This is sometimes difficult. We have so long thought in terms of fighting disease that to face about and build up pictures of health takes some mental readjustment. It also requires attention to some details that, in ordinary medical and nursing care of the child, are often entirely overlooked.

The Nutrition Class is, of course, but one part of the great health program which should operate in every city and village in our land; but it is a most essential part, and has proved its value already by the definite results achieved. Children have been saved from a life of physical unfitness which spells inefficiency, failure, and unhappiness, and have been well started on the way to health, joy, and success.

PSYCHO-ANALYSIS FOR THE MISSIONARY

A course has been instituted at Columbia University for the study of folk lore and of hereditary influences of the natives in the preparation of prospective missionaries to provide a knowledge of the customs, attitudes, and conditions of the peoples whose reactions he must interpret if he is to influence their conduct.

THE CENTRAL COUNCIL FOR NURSING EDUCATION

By MARTHA WILSON, Chairman, Executive Committee, Central Council for Nursing Education, Chicago, Ill.

A new organization has recently been formed by the lay boards of seven of Chicago's large hospitals, with an object, stated in the by-laws, as follows: "To disseminate information regarding nursing education and the achievements and possibilities of the nursing profession." The cooperating hospitals are: Presbyterian, St. Luke's, Michael Reese, Wesley, Evanston, Children's Memorial, and the Illinois Training School.

This organization opened an office March 1 in connection with the Chicago Collegiate Bureau of Occupations. An executive secretary will devote her entire time to furthering the object of the Council by addressing groups of high schools girls, teachers' organizations, girls' clubs, women's clubs, vocational conferences, farmers' institutes, and similar gatherings. She will arrange for dignified articles to appear in the public press and will supervise the details of such publicity as may from time to time seem advisable. She will travel through Illinois and neighboring states in the interest of the Council.

Membership in this Council is open only to organizations actively engaged in Nursing Education, and an annual membership fee of $500 is required of each cooperating organization. Further information can be obtained by writing to the secretary, Mrs. Ira Couch Wood, 6 North Michigan Avenue, Chicago.

Each organization is represented in the Council by four delegates, one of whom must be the director of nursing in that organization. The activities of the Council are directed by an executive committee composed of the officers, chairmen of standing committees, and two members at large.

The following executive committee has been elected to serve for the year 1920:

Miss Martha Wilson, chairman; Mrs. Mary Maltman Bass, vice-chairman; Mrs. Ira Couch Wood, secretary; Mr. Chauncey B. Borland, treasurer; Mr. William D. Allen, chairman Finance Committee; Miss Bena M. Henderson, chairman Credentials Committee; Mr. A. J. Pflaum, member-at-large; Mr. M. Haddon MacLean, member-at-large.

The Executive Committee has secured Katherine M. Olmsted as executive secretary.

The Central Council for Nursing Education is rapidly assuming an important place in the field of nursing. Since its active work was begun March 1, numerous hospitals in the central states have requested application blanks. These have been sent out, and Grant Hospital is the first hospital, outside of the charter members, to be admitted to membership.

Very attractive postal cards and sticker stamps bearing a photograph of the Italian statue of Florence Nightingale are calling attention to the fact that this is the Nightingale Centennial year. They also bear the slogan of the campaign to recruit nurses, "Know the Joy of Service—Be a Nurse," and the following stirring words: "The country needs 100,000 more nurses."

Reports of the shortage of nurses are coming in from all over the country. From all come the following: "State superintendents of schools are most enthusiastic about the work and are anxious to have talks given to their senior students on the subject of 'Nursing as a Profession.'" State Superintendent L. N. Hines of Indiana says: "What we want here in Indiana is a big supply of registered nurses who are high school graduates and who have as much other education as possible."

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

MEDICINE AND SOCIAL WORK

THE increasing recognition of health promotion as a fundamental in social work has been fully demonstrated at the New Orleans meeting of the National Conference of Social Work, which has just closed. The physician and the social worker are plainly getting together.

In the extensive program of the National Conference comprised in ten divisions; two, the Health and Mental Hygiene Divisions, were devoted entirely to health and nearly every one of the other eight divisions had one or more programs or papers on the medical and health aspects of social work.

The Children's Division had four papers directly on health. The Division of Delinquents and Correction had two papers on medical aspects and a joint session on mental hygiene. Public Agencies and Institutions had three full sessions, with seven papers on health topics. The Family Section had three papers dealing with community organization especially relating to health. The Industrial and Economic Problem Section dealt in formal and informal discussion with aspects of industrial health. The Local Community Division presented one paper and numerous discussions on health organization. The Division on the Foreign Born in America had a full session on the health problems of the immigrant.

Fully half of the entire program related directly or indirectly to the conditions which affect health. The earnestness with which these conditions were discussed made it evident that on the part of social workers the medical and health aspects of their work are fully recognized.

This constituted the final meeting of the Fifteenth Annual Conference of the National Child Labor Committee with the general subject for discussion of "The National Child Labor Committee at Work." Reports were received of recent developments in the field of child care and specific accounts were presented of work in Alabama, Kentucky, Michigan, Missouri, and other states. The newly established Department of Child Welfare in Alabama, regarded by experts as representing the type of constructive supervision American commonwealths are likely to undertake in the near future, was discussed.

FOR COMPARISON

So much publicity has been given to the report of the Medical Society of the State of New York on health insurance that we reprint the findings adopted by the Committee on November 9, 1919, and the resolutions adopted by the same Committee on July 26, 1919. We republish these summaries without comment for purposes of comparison.

Findings November 9, 1919

First.—There is no necessity for the institution of a scheme covering the major portion of the population of the state providing for the institution of contract medical practice on a colossal scale in order to furnish medical attendance and other services.

Second.—In those countries where this scheme has been in operation for many years, it has caused a deterioration in medical morale and medical service and its effect in this state would be the same, that is, a lessening in the quality of medical service.

Third.—In comparison with those countries where this scheme has been in operation the United States shows a more marked reduction in mortality rate, both general and as affecting maternal and infantile mortality rate. Apparently the morbidity rate under the scheme has doubled instead of being diminished in Germany and Austria since the institution of the social insurance plan.

Fourth.—There is danger of the scheme gradually undermining the functions so extremely valuable to the community at present subserved by the State Department of Health.

Fifth.—Owing to the paucity of accurate and unimpeachable data collected by means of an unbiased investigation, your Committee recommends that the Legislature

of 1920 be requested to appropriate a sufficient sum of money for the use of the Health Department, and such other departments in association with it, as it requires, for the purpose of making a survey of the state of New York to determine the amount and character of illness in its economical relation to the commonwealth.

Sixth.—If additional legislation is to be enacted, it should provide for a greater development of existing agencies for preventive medicine, together with the extension on a large scale of the present county and municipal functions for both preventive and remedial medicine, and it should make further provision for the inauguration of more widely extended utilization of the present institutional clinical facilities for the diagnosis and treatment of disease, in order to facilitate the access of the entire population of the state to modern methods in the practice of medicine.

Resolutions July 26, 1919

(1) Unless the great mass of the population, including workers and their dependents, are brought within the scope of the proposed Health Insurance Law, no material improvement can be effected in the organization of the medical profession, nor can the benefits of medical science be more widely and satisfactorily applied than by means now available. This Committee, therefore, holds that the insurance funds must furnish surgical, medical, and nursing attendance, and the prescribed treatment, not only to insured persons, but to the dependent members of their families.

(2) Believing that the rural population now receives inadequate medical attention, we recommend that agricultural laborers be definitely included among the compulsory insured.

(3) Domestic servants should be included among the insured.

(4) No health insurance plan can be regarded as satisfactory which does not make available for the insured persons an improved grade of medical service, including the services of competent consultants and specialists; specific provision should be made for consultants, and consultant services should be organized in some form of group diagnostic clinics.

(5) Hospital maintenance should be distinguished from medical attendance in hospitals; that it, the insurance firms should not be permitted to make inclusive arrangements with hospitals for maintenance plus medical services, but hospital maintenance and medical service in hospitals should be treated as separate items.

(6) It is essential that any health insurance bill should provide for payment for professional services in proportion to the service rendered.

(7) The capitation system of payment is opposed.

(8) The employment, by funds operating under any health insurance law, of attending physicians or surgeons on salary is opposed; there should be a single system and principle of payment applicable to all insured persons, whatever the character or kind of fund in which the insured persons may happen to be insured.

(9) The health insurance bills heretofore presented to the legislature have failed to provide for such an organization of the medical profesion as would make the voice of the profession effective in negotiating rates with the funds; in the opinion of the Committee, the most promising form of organization for this purpose is one in which the whole body of legally qualified practitioners in the state would have representation and voice.

(10) Provision should be made for dental, nursing, and laboratory service for the insured and for the dependent members of their families.

(11) In making provision for laboratory and research work insurance funds should deal with health departments as far as possible.

(12) Free choice among all legally qualified physicians and surgeons practising in the state, should be granted to the insured.

(13) Physicians practising under any health insurance law should have the privilege of refusing to care for an insured person.

(14) Rates of compensation for medical services should be readjusted at intervals not greater than twelve months.

(15) The participation of commercial or profit making insurance companies in health insurance under any state health insurance law is opposed.

(16) Funds should provide maternity care for insured women and for the wives of insured men.

(17) Fees for obstetric services should not be fixed by law.

(18) The use of the word "panel" to describe physicians rendering service under a health insurance law, thereby distinguishing and segregating certain practitioners or groups of practitioners is objectionable; in place of the word "panel" there should be some other appropriate designation for the group of reputable and qualified physicians who may elect to practise under the law.

(19) Except with the special consent of the State Insurance Commission, no physician in general practice should at any time undertake the care or treatment of more than 500 insured persons with the dependent members of their families, unless it can be shown that there is not a sufficient number of practitioners in the district to provide one physician for each 500 families.

(20) For the purpose of facilitating the careful and deliberate organization of medical practice under any health insurance law, a period of not less than eighteen months should be permitted to elapse between the passing of the Act and the time of its enforcement.

(21) No medical officer employed by a fund for the determination of sick benefit allowances should be permitted to practise medicine in any capacity under the law.

(22) The qualifications of the medical officers of the funds should be prescribed by the state Civil Service Commission.

(23) Two additional State Industrial Commissioners, both reputable physicians, should be appointed for the purpose of administering any health insurance law.

(24) The Board of Directors of the several funds should consist of equal numbers representing the employers and the employees, and at least one additional director who should be a physician, and who should be chosen by a majority of the directors.

(25) There should be in all districts a medical office building to serve as a center where general practitioners and the specialists engaged in the treatment of ambulatory (insured) patients can do their work; these buildings should contain the proposed diagnostic clinics.

(26) It is proper that the state contribute a fixed percentage of the total cost of administering the proposed compulsory health insurance law.

To give men that portion of hope and illusion without which they cannot live, such is the reason for the existence of gods, heroes, and poets. During fifty years science appeared to undertake this task. But science has been compromised in hearts hungering after the ideal, because it does not dare to be lavish enough of promises, because it cannot lie.—Lesueur.

THE PROBLEM OF DISEASE*

From a Report by the Public Health Committee of the New York Academy of Medicine, New York City.

With the increased complexity of modern urban life, the problems of the treatment and prevention of disease have come to occupy a prominent place in the social policy of most of our communities. The hospital and dispensaries are beginning to realize their wider opportunities and responsibilities and in addition to social work they have taken on certain public health activities. The present time marks the beginning of a new phase of development in many directions and this part of the survey of hospitals and dispensaries was undertaken with a view to ascertain the prevailing usages and practices in the dispensary field and to suggest such changes in policy and procedure as would render the services of the dispensaries more effectual and perhaps more adequately adjusted to the demands made upon them.

We know that in New York City the dispensaries, outpatient departments of hospitals, and the Health Department Clinics treat very large numbers of people, more than one million annually, but what we do not know sufficiently well is to what extent the dispensary meets the problem of disease in the community. To obtain an approximate idea as to that, and, also, as to how the dispensary is being regarded by the people, the present fragmentary community survey has been undertaken.

In the course of the survey a door-to-door canvass was made of families residing in certain sections of the city selected in consultation with social workers, school teachers, and insurance agents. Information bearing on the extent of sickness at the time of the visit and during the year 1918 has been elicited, together with information bearing on the income of the family, length of stay in the United States, the ability to speak English and a few other factors likely to determine the course of action in meeting the problem of disease.

Name of Family Address Case No.

Date

Investigator

Members of Family { Fa. Children working Children below school age } Total No. in Family Rooms occupied
Mo. Children at school Others in family

Occupation of chief wage earner Wages $ per week

Period of unemployment during year: Part due to illness Part due to lack of work or other causes.

Other income of the family Estimated total income $ per week

Birth place of father of mother Mother tongue

Father speaks English { Yes / No } Mother speaks English { Yes / No } Time in U. S.

Recent illness in family — Character and Cost of Care

MEMBER OF FAMILY ILL	DATE	CHARACTER OF ILLNESS	Duration of Illness	CHARACTER OF CARE (Hospital, Private Physician, Dispensary, Christian Science, Self Medication, Via Doctor, Lodge Doctor, Via Nurse, Drug Store)	AMOUNT PAID FOR MEDICAL CARE	NURSING AND COST	REMARKS
i.	ii.	iii.	iv.	v.	vi.	vii	viii

Dispensaries (obtain reasons for going to the dispensary)

Obstetrical care at birth of last child:

Date

Prenatal Care: Yes No — Doctor Paid $ — Midwife Paid $

Post Partem Nurs'g Yes No — Hosp. Paid $ — O. P. D. Paid $

Unattended — Why

The appended schedule (Fig. 1) used in the door-to-door canvass, on which the information given by the patients when interviewed was recorded, will indicate the nature of the data which we endeavored to elicit and which constitute the basis of the present report. In the community canvass we visited 2,023 families whose domiciliary geographical distribution is as follows: 62.3 per cent in Manhattan; 7.9 per cent in the Bronx; 24.3 per cent in Brooklyn; 2.4 per cent in Queens; and 2.9 per cent in Richmond. (See Table I.) Of these families, 13.5 per cent were native born;[1] 22.6 per cent Italians; 16.3 per cent Hebrews; 17.6 per cent Slavs; 6.2 per cent Irish; 7.4 per cent Germans; 9.8 per cent Negroes; 6.6 per cent miscellaneous, including Scandinavians, Greeks, French, Scotch, English, Turks, and Armenians.

The districts selected were those in which certain racial groups were known to reside and in which there was not, as far as it could be known, any considerable proportion of destitute families. The aim was to include in the survey as large a number of self-supporting workmen's families as could be induced to give the desired information. Less difficulty was found in obtaining the information than we had anticipated. Only in few instances was refusal to furnish information encountered; whenever there was any disinclination on

*The second of a series of three articles on dispensary service appearing in MODERN MEDICINE.

1. As one of the aims of the study was to ascertain to what extent the existing differences in attitude toward illness and toward medical institutions are attributable to differences in racial habits and types of mind, the Hebrews and the Negroes were put in separate racial classifications, irrespective of whether or not they were born in United States. Likewise, all the Slavs were put in one group although there exist well recognized differences among them; and the Germans include natives of Austria as well as of Germany.

the part of the person to answer questions readily, the inquiry was not pursued. With the exception of the Germans, the majority of the families were ready to give the desired information. Some were eager to discuss their sickness experiences and to inform the Academy of Medicine about them in much greater detail than we cared to have it. In order to make the survey as representative of city conditions as feasible, we gathered the data in almost every section of Manhattan on both the East and West sides. We visited the Battery section; lower East Side; the lower West Side; the Chelsea district; on the West Side in the Seventies between Eightieth and Ninetieth streets and among the negroes in Harlem. In the other boroughs we tried to follow the same method but in a more restricted way.

Extent of Sickness in the Community

As has been stated, the families visited were asked as to illness in the family at the time of the visit as well as to the illnesses and their duration during the year 1918. Most of the studies of prevalence of illness are based on the information obtained at a point in time. This method is used because people know definitely about illness at the time of the visit, and the inquiring agent is able to observe conditions himself; while the information concerning the amount of illness during a considerable period of time is always inaccurate because a great deal of it is apt to be forgotten, particularly if it were of a minor nature or of short duration. Fully realizing that the information obtained for the past year would be inexact and rather under-estimated than over-estimated, we proceeded to obtain it; for, even though inexact, it would refer to a large amount of sickness and would throw more light on the question of provision made by families to meet the problem of disease than a mere cross-section at any given time.

In classifying the illnesses, the usual division into complete and partial disabilities was adopted. "Complete disability" designated a condition in which the person was ill for at least twenty-four hours and was unable to work or to care for himself. "Partial incapacity" was either an impairment of the usual ordinary activities or something for which treatment was taken. During the year 1918 there have been, according to this classification, 251 cases of complete incapacity per every 1,000 persons (Table II). This includes cases of influenza. If cases of influenza be eliminated, the number of complete incapacities per 1,000 per year would be reduced to 102; *i. e.*, barring influenza, there were *102 cases of some sort of complete incapacity during the year for each 1,000 persons.* As some of the individuals had more than one incapacity during the year, the average number of people per 1,000 having had some illness during the year is somewhat reduced. During the same year 157 cases of partial incapacity were found for every 1,000 persons.

The distribution of complete and partial incapacity by sex was as follows (Table III): Among the adult males there were 181 cases of complete incapacity per every 1,000 during the year 1918, inclusive of influenza cases. The rate of complete incapacity among females was almost double this figure, namely, 355 per 1,000. One reason for this wide difference between males and females is that cases of child-birth have been included among the complete incapacities. Eliminating this cause of disability, the rate for women was 203. Another probable, though much less important, reason for the difference is that in most instances the data about sickness were obtained from the female members of the families and they were more apt to remember their own illnesses than those of their husbands. The annual rate of complete disability for children under 16 was 225 per 1,000.

Among partial incapacities the variations are similar to the variations in complete incapacities. The lowest rate was found among the adult males, 128 per 1,000; the rate was 186 for adult women and 158 for children under sixteen.

The rates of prevalence of disease in point of time were of course much below the annual rates. The general rate of complete incapacity was 22 per 1,000. It was again lowest among the adult males, being 14 per 1,000; a little higher among children under sixteen, who showed a rate of 18 per 1,000; and again very high for females, 35 per 1,000. Here again the rate for women is slightly enlarged by the few cases of confinement found at the time of the visit. The general rate of partial incapacity has been found to be 50 per 1,000; 30 among adult males; 63 among females; and 55 among children. The rate of partial incapacity at the time of visit was more than twice as great as that for complete. For the illnesses during the year 1918 the complete far exceed the partial incapacities. This proves that in stating their illness experience people fail to remember a great many of the minor ailments.

Table I.—Racial Groups Included in the Community Canvass Tabulated by the Boroughs in Which They Lived

Borough.	U.S.A.	Italian	Hebrew	Irish	Slav	German	Negro	Miscellaneous	Total No.	Total Per cent
Manhattan	181	279	215	84	105	121	193	83	1261	62.3
Bronx	20	82	..	10	16	20	3	10	161	7.9
Brooklyn	39	54	114	23	224	2	..	37	493	24.3
Queens	17	19	1	5	..	2	1	4	49	2.4
Richmond	16	25	..	1	12	3	2	..	59	2.9
Total No.	273	459	330	123	357	148	199	134	2023	100.
Percentage	13.5	22.6	16.3	6.2	17.6	7.4	9.8	6.6	100	....

A Profitable Comparison

It is interesting to compare the complete incapacity rate found among the people at the time the canvass was made, that is, in January, February, and March of 1919, with the rate as ascertained in a canvass made by the Metropolitan Life Insurance Company jointly with the Chelsea Neighborhood Association of New York for the district between Fourteenth and Forty-second Streets, Fifth Avenue and East River in April, 1917. At that time the rate of complete incapacity per 1,000 was found to be 14.8 for the district. The higher rate found in our broader survey is probably due to the influenza still lingering at that time and to the greater exhaustion of the people in the period immediately following the stress of the war

TABLE II.—TOTAL NUMBER OF PERSONS INCLUDED IN THE CANVASS: NUMBER FOUND ILL AT TIME OF VISIT AND NUMBER ILL DURING THE YEAR—TABULATED BY NATIONALITY, AGE AND SEX. (NEW YORK CITY.)

Nationality and number of families.	Sex and Age.	Total No. of Families.	Total No. of Individuals.	Condition of People Ill at Time of Visit.						Total People Ill During Year		Number of Cases of Illness During the Year.					
				Partial Incapacity		Complete Incapacity		Total Number Ill				Partial Incapacity		Complete Incapacity		Total Cause of Illness	
				No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No	Per cent
United States.	Adult, Male...	...	299	8	2.7	2	.7	10	3.4	112	37.5	76	26.4	52	17.4	128	42.7
	Adult, Female.	...	343	28	8.2	12	3.5	40	11.7	162	47.2	93	27.1	106	30.9	199	58.0
	C-16	...	479	26	5.4	14	2.9	40	8.3	225	47.	169	35.3	100	20.9	269	56.2
	Total	273	1,121	62	5.5	28	2.5	90	8.	499	44.4	338	35.1	258	23.0	596	53.1
Italian	Adult, Male...	...	565	9	1.6	11	1.9	20	3.5	189	33.4	50	8.8	158	27.8	208	36.8
	Adult, Female.	...	566	19	3.3	26	4.6	45	7.9	246	43.5	54	9.5	233	41.2	287	50.6
	C-16	...	1,021	34	3.3	16	1.6	50	4.9	333	32.6	75	7.4	274	26.8	349	34.2
	Total	459	2,152	62	2.8	53	2.5	115	5.3	768	35.6	179	8.3	665	30.9	844	39.2
Hebrew	Adult, Male...	...	436	6	1.4	8	1.8	14	3.2	111	25.2	37	8.5	73	16.7	110	25.2
	Adult, Female.	...	427	10	2.3	9	2.1	19	4.4	186	43.5	67	15.7	160	37.4	227	53.1
	C-16	...	679	22	3.2	13	1.9	35	5.1	231	34.1	77	11.3	161	23.7	238	35.1
	Total	330	1,542	38	2.5	30	1.9	68	4.4	528	34.3	181	11.7	394	25.5	575	37.3
Irish	Adult, Male...	...	136	13	9.6	2	1.5	15	11.1	41	30.1	29	21.3	17	12.5	46	33.8
	Adult, Female.	...	147	16	10.9	8	5.4	24	16.3	71	48.2	44	29.9	38	25.8	82	55.7
	C-16	...	147	16	10.9	3	2.1	19	13.	69	47.	57	38.8	24	16.3	81	55.1
	Total	123	430	45	10.4	13	3.	58	13.4	181	42.	130	30.2	79	18.3	209	48.6
Slavic	Adult, Male...	...	482	19	3.9	7	1.5	26	5.4	119	24.7	42	8.7	83	17.2	125	25.9
	Adult, Female.	...	414	33	7.9	24	5.8	57	13.8	241	58.3	59	14.3	222	53.6	281	68 0
	C-16	...	796	80	10.1	17	2.1	97	12.2	234	29.4	90	11.3	165	20.7	255	32.0
	Total	357	1,692	132	7.8	48	2.8	180	10.6	594	35.1	191	11.2	470	27.7	661	39.0
German	Adult, Male...	...	196	4	2.	..	...	4	2.	40	20.2	27	11.2	15	7.6	42	21.4
	Adult, Female.	...	194	14	7.2	1	.5	15	7.7	86	44.3	51	13.8	52	26.8	103	53.1
	C-16	...	162	2	1.2	1	.6	3	1.8	64	39.5	36	26.3	34	21.0	70	43.2
	Total	148	552	20	3.6	2	.3	22	3.9	190	34.4	114	22.2	101	18.2	215	38.9
Negro	Adult, Male...	...	190	5	2.6	4	2.1	9	4.7	49	25.8	27	14.2	24	12.6	51	26.8
	Adult, Female.	...	261	18	6.9	5	1.9	23	8.8	77	28.5	53	20.3	39	14.9	92	35.2
	C-16	...	173	12	6 9	2	1.1	14	8.1	44	25.5	29	16.7	21	12.2	50	28.9
	Total	199	624	35	5.6	11	1.7	46	7.3	170	27.4	109	17.4	84	13.4	193	30.9
Miscellaneous.	Adult, Male...	...	171	11	6.4	2	1.2	13	7.6	50	29.2	29	17.0	26	15.2	55	32.2
	Adult, Female.	...	162	21	12.9	3	1.8	21	14.8	78	48.2	47	29.1	49	30.2	96	59.3
	C-16	...	199	10	5.1	3	1.5	13	6.8	82	41.2	44	22.5	48	24.2	92	46.3
	Total	134	532	42	7.9	8	1.5	50	9.4	210	39.5	120	22.5	123	23.1	243	45.6
	Men	...	2,475	75	3.	36	1.4	111	4.5	711	28.6	317	12.8	448	18.1	764	30.9
	Women	...	2,514	159	6.3	88	3.5	247	9.8	1,147	45.6	468	18.6	899	35.5	1,367	54.1
	Children	...	3,656	202	5.5	69	1.8	271	7.4	1,282	35.	577	15.8	827	22.5	1,403	38.4
Grand Total..		2,023	8,645	436	5.	193	2.2	629	7.2	3,140	36.4	1,362	15.7	2,174	25.1	3,536	40.9

time endeavors. Comparing our complete incapacity rate with other communities as reported in the surveys of the Metropolitan Life Insurance Company, we find the former to be considerably lower than in some other cities. For example, Kansas City showed a rate of 25.2; Rochester, N. Y., 23.1; Trenton, N. J., 25.8; North Carolina, 28.5.

The rate of distribution of complete and partial incapacities among the boroughs of the city in point of time shows marked differences. In view of the fact, however, that we made comparatively few investigations in the boroughs of Richmond and Queens, the rates for these boroughs are entirely inconclusive and therefore have been omitted.

Boroughs	Complete Incapacity Rate	Partial Incapacity Rate
Manhattan	15.3	48.8
Bronx	26.0	30.1
Brooklyn	30.1	64.0

A similar borough distribution of incapacity rates for year 1918 will show the following variations:

TABLE III.—TOTAL NUMBER OF PERSONS INCLUDED IN THE CANVASS: NUMBER FOUND ILL AT TIME OF VISIT AND NUMBER ILL DURING THE YEAR. TABULATED BY SEX AND AGE

Sex and Age	Condition of people ill at time of visit						Number of cases of illness during the year					
	Total No. of individuals	Partial incapacity		Complete incapacity		Total number ill		Total No. of people ill during year	Partial incapacity		Complete incapacity		Total No. of cases of illness	
		No.	Per cent	No.	Per cent	No.	Per cent		No.	Per cent	No.	Per cent	No.	Per cent
Adult, Male.....	2475	75	3.	36	1.4	111	4.5	711	317	12.8	448	18.1	764	30.9
Adult, Female.....	2514	159	6.3	88	3.5	247	9.8	1147	468	18.6	899	35.5	1367	54.1
Child under 16.....	3656	202	5.5	69	1.8	271	7.4	1282	577	15.8	827	22.5	1403	38.4
Total	8645	436	5.	193	2.2	629	7.2	3140	1362	15.7	2174	25.1	3536	40.9

TABLE IV.—TOTAL NUMBER OF PERSONS INCLUDED IN THE CANVASS, NUMBER FOUND ILL AT TIME OF VISIT AND NUMBER ILL DURING THE YEAR. TABULATED BY NATIONALITY

Nationality.	Total No. of families	Total No. of individuals	Families having illness		Partial incapacity		Complete incapacity		Total ill		People ill during year.		Partial incapacity		Complete incapacity		Total cases of illness	
			No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	No. per M	No.	Per cent	No.	Per cent	No.	Per cent
U. S. A.	273	1121	218	80.	62	5.5	28	2.5	90	8.	499	444	338	30.1	258	23.	596	53.1
Italian	459	2152	360	78.4	62	2.8	53	2.5	115	5.3	768	356	179	8.3	665	30.9	844	39.2
Hebrew	330	1542	261	79.	38	2.5	30	1.9	68	4.4	528	343	181	11.7	394	25.5	575	37.3
Irish	123	430	94	76.4	45	10.4	13	3.	58	13.1	181	420	130	30.2	79	18.3	209	48.6
Slav	357	1692	279	78.	132	7.8	48	2.8	180	10 6	594	351	191	11.2	470	27.7	661	39.
German	148	552	102	68.9	20	3.6	2	.3	22	3.9	190	344	111	20.6	101	18.2	215	38.9
Negro	199	624	118	59.	35	5.6	11	1.7	46	7.3	170	274	109	17.4	84	13.4	193	30.9
Miscellaneous	134	532	109	81.2	42	7.9	8	1.3	50	9.4	210	395	120	22.5	123	23.1	243	45.6
Total	2023	8645	1541	76.	436	5.	193	2.2	629	7.2	3140	364	1362	15.7	2174	25.1	3536	40.9

Boroughs	Complete Incapacity Rate	Partial Incapacity Rate
Manhattan	220	191
Bronx	304	128
Brooklyn	237	102

The distribution of the disability rates among the various racial groups of the population is particularly instructive. (Table IV). While the general complete incapacity rate in point of time was 22 per 1,000, it was 25 for the native born; 25 for the Italians; 30 for the Irish; 28 for the Slavs; 19 for Hebrews; 17 for Negroes; 15 for the miscellaneous group, and only 3 for the Germans. The rates among the respective nationalities for partial disability follow in a different order. While the average rate for the partial disability was 50 per 1,000, it was 55 for the native born group; 28 for the Italians; 104 for the Irish; 78 for the Slavs; 25 for Hebrews; 36 for Germans; 56 for Negroes; and 79 for the miscellaneous group. The groups that seem to have the largest amount of illness are the Irish and the Slavs, and the lowest prevalence was found among the Italians, Hebrews, and Germans. One of the surprising findings is that the prevalence of disease among Negroes is lower than among the native whites. It must be remembered, however, that while the Negroes in this survey were from among the better or more prosperous class, the native whites included in the survey and residing in the rather poorer districts of the city, are hardly typical of the average native population.

A similar tabulation of the prevalence of disease for the year 1918 gives the following results:

National Group	Complete Incapacity Rate	Partial Incapacity Rate
Native Born	230	301
Italian	309	83
Hebrew	255	117
Irish	183	302
Slav	277	112
German	152	206
Negro	134	174
Miscellaneous	231	225
Average	251	157

The rates based on the annual incidence do not fully corroborate the other findings. Although here, again, the Slavs show a high rate of incidence of complete disability, the Irish are below the average, and the Hebrews and Italians are in the highest groups. The Negroes again show a very low rate of complete incapacity.

Disease Distribution by Sex

A study of the rates of disease prevalence of each nationality by sex shows that illness is much more common among the women of every racial group. The differences in the rates between men and women are in some instances very high; for instance, in the native born group, where the complete disability rate for a point in time was 35 for women and 7 for men; and among the Italians, where the rate was 46 for women, and 19 for men. Among the Irish it was 54 for women and 15 for men, and among the Slavs, 58 for women and 15 for men. Only in a small measure is the difference due to incapacity on account of childbirth.

The difference in prevalence of disease among women of various nationalities is likewise very pronounced. It varies from 58 among the Slav women, and 54 among the Irish women, to 35 among the native born, 19 among the Negro women, and 6 among the German women. The variation of prevalence of illness among the men is much less noticeable. Here it is highest among the Negroes, reaching the figure of 21, and lowest among the native born, 7, and the Germans, 5.

The low figures for the German group throughout are probably due to the fact that on account of war conditions the Germans were suspicious and least willing to give any information about themselves. What has been said about the differences in the prevalence of complete incapacity applies as well as to the partial incapacities.

With a view to ascertain whether there is any relation between prevalence of disease and economic status, the

TABLE V.—NUMBER OF FAMILIES IN EACH ECONOMIC GROUP TABULATED BY NATIONALITY

Nationality	No. of families	Weekly per capita income: Less than $4.50		$4.51 to $6.50		$6.51 to $8.50		$8.51 to $10.50		$10.51 to $15.50		$15.51 to $20.50		$20.50 and over		Not determined	
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
U. S. A.	273	22	8.1	62	22.7	80	29.2	50	18.3	25	9.2	7	2.6	1	.4	26	9.5
Italian	459	64	14.	133	29.	95	20.7	70	15.2	44	9.6	9	1.9	12	2.6	32	7.
Hebrew	330	24	7.3	88	26.6	74	22.4	56	17.	45	13.7	5	1.5	2	.6	36	10.9
Irish	123	8	6.5	32	26.	21	17.1	17	13.8	20	16.2	4	3.2	2	1.5	19	15.4
Slav	357	23	6.5	97	27.2	110	30.8	57	16.	39	10.9	5	1.4	6	1.7	20	5.6
German	148	5	3.5	18	12.2	35	23.6	31	21.	24	16.2	4	2.7	3	2.	28	18.9
Negro	199	16	8.	34	17.1	26	13.1	28	14.	41	20.6	12	6.2	4	2.1	38	19.
Miscellaneous	134	4	3.	24	17.9	34	25.5	22	16.5	15	11.3	11	7.5	2	1.5	22	16.5
Total	2023	166	8.3	488	24.1	475	23.4	331	16.3	253	12.5	57	2.8	32	1.6	221	10 9

average weekly income per person in each family has been used as an exponent of economic well-being. A child under sixteen was, for purposes of tabulation, considered as half a person. Older children who were contributing only part of their earnings to the family budget, and boarders, were also considered as half persons in the figuring of the *per capita* income, since only part of their living expenses came out of the total family income, clothing and incidentals being paid for by them out of their own incomes. The total income of each family was divided by the total number of persons in the family, and in this way a *per capita* weekly income has been arrived at. It was considered inadvisable to employ more complicated statistical methods to arrive at the average weekly earnings per capita, such as were for instance employed by the United States Bureau of Labor Statistics in its recent study of family budgets.

As the wages during the year 1918 were uniformly high on account of the war demand for labor and, as the law prohibited persons from being idle, the amount of unemployment was at a minimum. The weekly wage ascertained at the time the inquiry was made has been taken as a representative wage for the whole year 1918.

Our 2,023 families were divided on the basis of the *per capita* income into seven groups. In the first group (A) in which the average weekly *per capita* income was less than $4.50, there were 166 families. In the second group (B) averaging from $4.51 to $6.50, there were 488 families; in the third group (C) averaging from $6.51 to $8.50, 475 families; in the fourth group (D), averaging from $8.51 to $10.50, 331 families; in the fifth group (E), averaging from $10.51 to $15.50, 253 families; in the sixth group (F), averaging from $15.51 to $20.50, 57 families; in the sixth group (G), where the average *per capita* weekly income was more than $20.50, there were 32 families. For 221 families, sufficiently definite information could not be obtained to warrant the figuring of the *per capita* weekly income. From Table V it will be seen that 8.3 per cent of the total number of families were in the lowest economic group, and that 14 per cent of the total number of Italian families were in that group. The native born and the Negroes each had 8 per cent of their families in that group, while the German and miscellaneous groups were represented in that economic division only to the extent of a little over 3 per cent each. In the second group, into which 24 per cent of all the families fell, the Italians had 29 per cent, the Slavs 27 per cent, Hebrews and Irish 26 per cent each, while the Germans had only 12 per cent. In the third group, $6.51 to $8.50 *per capita* income per week, there were almost 24 per cent of the total families; with the exception of the rather small percentages of Negroes and Irish, the remainder of the nationalities were in this group from about one-fifth to a little less than one-third of their families.

The first three economic groups contain more than 56 per cent of the total number of families. These three groups comprise more than one-half of the families of the native born, Italians, Hebrews, and Slavs; while the Irish, Negroes, Germans, and miscellaneous nationalities preponderate in the four highest economic groups.

As the number of persons in each family was an important factor in determining the economic status in our classification, the average size of the families of each of the nationalities may serve as a guide to the extent to which their economic status was either depressed or elevated by the averaging method employed in this study. By analyzing the data, we find that while the average family among the native born consisted of 4.1 persons, and that among the Italians it was 4.7, the Hebrews 4.7, the Slavs 4.8, the miscellaneous group 4.0, it was only 3.7 among the Germans, 3.5 among the Irish and 3.1 among the Negroes. The Irish and the Germans are the older immigrants; their average age is accordingly higher than that of the more recent immigrants, and the number of dependent children correspondingly smaller; hence other conditions being equal, their average *per capita* income strikes a higher figure than that of the other families having a larger number of dependent children. This also undoubtedly accounts for the fact that more than 50 per cent of the German and Irish families were among the four higher economic groups. The small average size of the Negro families included in this survey caused the favorable economic distribution presented by them.

Table VI presents the distribution of partial and complete disability for the year 1918 among the families classified by economic status. It shows that the lower the economic group, the higher is the percentage of families affected by illness. Disregarding the two highest economic groups, for each of which the number of families is comparatively small, we find a descending percentage of illness as the families ascend on the economic scale. Of the families with less than $4.50 *per capita* weekly income, 85.5 per cent had some illness during the year, as compared with only 68.4 per cent of the families in the fifth group (E) enjoying an income of from $10.51 to $15.50 *per capita* per week.

TABLE VI.—TOTAL NUMBER OF FAMILIES AND INDIVIDUALS AND THE NUMBER AND TYPE OF INCAPACITY—TABULATED BY ECONOMIC GROUPS

1918	Economic group	Weekly per capita income	Number of families	Number of individuals		Families having illness		Partial incapacity				Complete incapacity					
					Aver. No.			Families in which it occurred		Cases		Families in which it occurred		Cases		No. of maternity cases	No. of cases per 1000 families
				Total No.	per family	No.	Per cent	No.	Per cent	No. of cases	per 1000	No.	Per cent	No. of cases	per 1000		
NEW YORK CITY	A	Less than $4.50	166	969	5.8	142	85.5	74	44.6	124	128	101	60.8	239	247	44	265
	B	$ 4.51 to $ 6.50	488	2495	5.1	404	82.8	231	46.9	390	156	305	62.7	633	254	121	248
	C	$ 6.51 to $ 8.50	475	1995	4.	375	79.	224	45.2	361	181	271	54.7	562	282	100	202
	D	$ 8.51 to $10.50	331	1216	3.6	236	71.3	128	38.6	178	146	171	51.6	300	247	59	178
	E	$10.51 to $15.50	253	788	3.1	173	68.4	98	34.7	132	167	114	45.	190	241	28	115
	F	$15.51 to $20.50	57	170	3.	41	72.	19	33.3	30	177	29	50.8	49	288	9	158
	G	$20.51 plus	32	114	3.5	23	72.	12	36.8	17	149	16	50.	28	246	3	94
		Income not determined	221	898	4.	147	67.	97	43.8	130	145	87	39.3	173	195	23	104
			2023	8645	4.3	1541	76.2	883	13.6	1362	157	1094	54.	2174	251	387	191

STUDENTS' HEALTH SERVICE AT THE UNIVERSITY OF CALIFORNIA

By ROBERT T. LEGGE, M.D., F.A.C.S., Professor of Hygiene and University Physician, University of California, Berkeley, Cal.

THE University of California, at Berkeley, now the largest university in the United States, pioneered the movement for a students' health service about fourteen years ago. My predecessor, the late G. F. Reinhardt, M.D., inspired with the principles of socialized medicine, and with several years' experience in physical education behind him, realized that the development of an efficient, scientific organization for the protection and conservation of the students' health necessitated the provision of a dispensary and hospital on the campus, and also the organization of a department of hygiene which could offer courses in health subjects and cooperate with the other academic departments whose activities were directly associated with health problems, such as physical and military education. Like all other pioneer movements, it required a great deal of energy and educational propaganda to remove the many obstacles to the consummation of a new measure of this kind.

First University Health Service

An old residence was secured and remodeled as a temporary infirmary to quarter the dispensary and hospital service, and so was born the first university health service. From the very inception of the organization, compulsory physical examinations and vaccination were instituted. A two-unit course in personal and community hygiene had already been made compulsory for the first semester for all freshmen. It was in this course also that students were made acquainted with the necessity for the control of communi-

A residence was remodeled to house the infirmary, and to quarter the dispensary and hospital service of the University of California, at Berkeley, which was the first university health service in the United States.

The waiting room is spacious and comfortable and carries little that is suggestive of the usual dispensary environment. Educated to secure scientific care before a serious condition develops, the students carry with them the message of preventive medicine to their homes and communities.

cable diseases, thereby eliminating, so far as possible, sickness as a cause of disability in university classes; for it was observed by the faculty that poor class attendance was principally due to this factor and not to lack of interest, or of idleness on the part of the students. The application of the value of "a stitch in time" could be demonstrated practically, for students could visit the infirmary and be scientifically treated before a more serious condition developed. With such an educational program, theoretically and practically demonstrated in a university community, our students could not help carrying the message of preventive medicine to their own homes and communities.

Time and time again students residing in boarding and fraternity houses, and taken ill with communicable diseases, caused the quarantining by law of those houses, thereby isolating the other inmates, non-infected and immune, and depriving them of attendance in their courses. Our private hospitals will not accept communicable diseases, so this was the only possible course. In struggling with such a situation the college infirmary provided a welcomed innovation to students and authorities alike. Whenever a student has been exposed to or is suffering from a contagious disease, he or she applies at the infirmary for admittance, advice, or examination. If the case, for example, by bacteriological and clinical examination is found to be diphtheria, all members of the patient's house must have nose and throat cultures taken so as to locate all missed and carrier cases. We pioneered the exposition of the principles that were laid down by Chapin in the hospitalization of communicable diseases, by practising medical asepsis. A special contagious building was never required, fumigation was abolished, and our records show no cross-infections have ever occurred. Concurrent and terminal disinfection is used, depending upon the type of infection, and advice is given to the patient when discharged. The fact that a system for the medical supervision of college students suffering from contagious diseases and providing for this isolation in a hospital could not be objected to by any fair-minded practitioner of medicine, formed the link of stability in our relations with outside physicians.

Only students who apply for service at the infirmary are treated. Under no circumstances will the staff treat or accept students as private patients residing outside the campus. Any student is at liberty to engage a private physician at his own expense if he desires, when ill at home, or for consultation with the staff when the case is in the infirmary.

Our teaching of hygiene régime involves the principle that disease is usually found in the sick and their duty is to avoid contact and so prevent others from being ill; and, when ill, to report their disease to the authorities and consult only legally qualified physicians for curative purposes. With an interest entirely destined to the prevention of sickness, to the decrease of academic losses and increased efficiency among the whole student body, the system has been approved by the leading medical men residing in proximity to the campus. Even among those cults opposed to health supervision no objections are offered when the work performed is in the nature of preventive medicine.

Physical Examination Rigid

Every student matriculating is obliged to have a complete physical examination, which is more rigid than the recent army standards required, as well as compulsory vaccination for those who

Main office opening into private office of the university physician. The staff is composed of nine men and women physicians, two dentists, two technicians, office clerks, and ten graduate nurses.

do not possess a satisfactory scar. Only in a few instances have applicants been denied admission, and these were advanced active cases of tuberculosis and mental disorders. How can any sane individual argue against physical examination when the advantages are so numerous, these including the recognition of early infections, the identification of missed cases and carriers, the finding of incipient disorders, the disclosure of congenital and postural defects, and the allaying of fear from imaginary illness. Besides these advantages, the physically weakened are advised to carry a limited amount of work ,as our slogan is "Health first." Mutual cooperation exists between the Infirmary and the Physical Education and Military Departments, the one physical examination record being sufficient. Many of our corrective cases for postural and pathological defects under medical prescription are supervised by the Physical Education Department.

The number of students who seek advice and treatment annually in the dispensary is between 50 and and 78 per cent. Why such a high percentage, may be asked, among such an apparently young group. It simply demonstrates the fact that the average person requires medical service and, when it can be easily efficiently administered, it supplies a very practical lesson in nipping the disease in the bud, thereby preventing a more serious condition.

Eye, ear, nose and throat room of the medical department at Berkeley. All students are treated in exactly the same manner, and whatever service is indicated is provided. The success of the method is a living demonstration of what mutual understanding and sympathy can accomplish.

As California has coeducation, the dispensary hours are arranged so each sex is treated at different periods, utilizing thereby all the facilities that are at hand.

The dispensary is not simply a place from which to deal out medicine, but a place in which the object is to determine by scientific means the underlying disease. This work on the part of the clinician, with so many students daily visiting the dispensary, would be impossible to handle if it were not for the complete history, with medical examination record, that always lies before him.

When the student applies he fills out a slip, takes a number designating his turn, and files same with the office clerk, who immediately seeks his record and forwards it by a mechanical carriage to the respective clinicians' room. The student waits in the waiting room until his number is called and is then dispatched to the nurse or doctor in the various treatment and consulting rooms. The rule is that if any applicant has 1° temperature the case is a hospital one for observation and development. Many a contagious case with only this one prodrome is safely isolated early. Each day as the records are returned to the office a statistical summary is made up according to a standard nomenclature of diseases, for the annual report. This procedure makes certain a correct diagnosis, when that is possible, and keeps the general record of the patient written up in recording the nature of the last visit.

The staff is composed of nine men and women physicians, two dentists, two technicians—a roentgenologist and bacteriologist—office clerks, ten graduate nurses, and the servants. The physicians give part time only; some are instructors in the Department of Hygiene, while the others enjoy outside practice. Of the staff, many are specialists, *viz.*, surgeons, oculist, orthopedist, urologist, and internists, the specialists devoting their time to their respective clinic hours and hospital service. With such facilities consulations are frequent and group medicine made possible. It is the primary purpose of the staff, through educational means, to teach the students how to live and eliminate disease by every available means.

In our experience we have discovered it is mistake to employ student nurses or medical students connected with the university, to treat patients, or to use students for clinical or demonstrative puposes. The university physician has definitely tried to aviod the "institutionalized spirit" by maintaining an atmosphere of warm personal interest about the place. The friendly advice of the physicians, the care, the good nursing, comfort and good food, the student avails himself of, without that feeling of dread so commonly experienced.

The Matter of Costs

As the state in its annual university budget does not make provision for students' health supervision, the fees are collected as a part of the

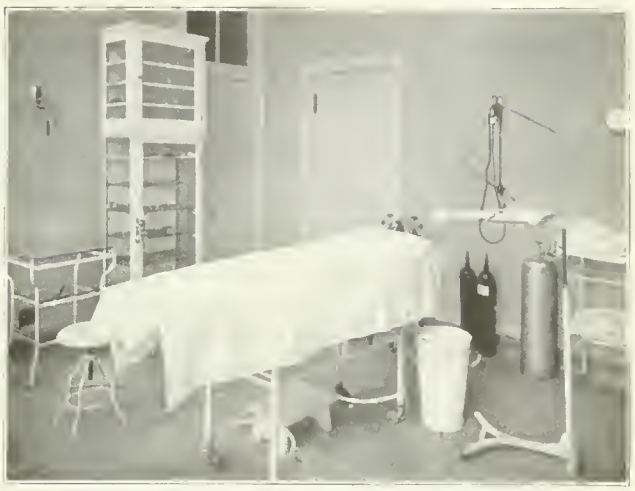
regular academic entrance fee. Of this amount, $3.00 *per capita* each semester is placed in the Infirmary budget. The University Physician is the administrative officer and is responsible to the President of the University. He also holds the position of Professor of Hygiene in the academic department.

At present the system provides for the fee, in addition to the complete physical examination and vaccination, dispensary, and hospital care, including food, shelter, medical, and nursing service, medicines, x-ray, clinical, and laboratory examinations. There is no extra charge except for special surgical operations and dentistry. A minimum fee is charged; for example, $50 for an appendectomy or mastoid, which includes complete hospital service. It is the avowed aim of the University Physician to eliminate these fees as ra idly as the funds will permit, particularly for such diseases as necessitate operative procedure and which occur during college residence.

All students are cared for in exactly the same manner, without distinction as to race, color, or creed. If a private room is required because of the nature of the disease, one is provided; if not, and a ward bed is indicated, the student is placed in a ward. Strict democracy is maintained a principal characteristic of the institution, a living demonstration of what mutual understanding and sympathy can accomplish.

For the house patients the Infirmary has sixty-eight beds which are in private rooms and wards. The private rooms are twenty in number and there are three large wards with a capacity of eight beds each. In 1918-19 the number of bed patients was 635; of these 69 were sick in bed as house patients more than once during the year, the average stay being 5.8 days. The average number of patients per day was 11.6 and the largest number at any one time was 40. The number of students who received advice or treatment during the past year (251 days), 1918-19, was 3,517, or 50 per cent of the total enrollment of 7,014 students. The average in normal years is about 72 per cent, with a daily dispensary numbering about 126 individual patients who average 7.8 treatments. The low percentage for the year 1918-19 was due to the fact that the Students' Army Training Camp cared for their own dispensary cases and the influenza epidemic victims.

Sixty-eight beds in private rooms and wards take care of the house patients of the University Infirmary. In 1918-19 the bed patients numbered 635, the average stay being 5.8 days, the average number of patients per day being 11.6.



The equipment at Berkeley provides the various features necessary for a first class hospital, such as X-ray laboratory, operating and sterilizing room, a splendid cuisine, open-air decks, a solarium, and numerous baths and showers.

Care for Incipient Conditions

To the uninformed it might appear that this large percentage of cases would indicate unusual morbidity; but, as a matter of fact, the purpose is to encourage early advice for incipient conditions, thereby avoiding graver complications and developments.

The equipment provides the various features that are necessary for a first-class hospital, such as an x-ray laboratory, operating and sterilizing room, a splendid cuisine where the best foods are supplied and prepared, open-air decks for the treatment of anemia and pulmonary cases, a solarium for convalescents, waiting rooms, and numerous baths and showers.

The estimate of costs for operating the infirmary was based on dividing the gross costs, which include salaries, the maintenance of dispensary and house service, by the number of beds, which gives an estimated cost per bed per day of $3.98. Surgical operations requiring anesthesia averaged about 150 *per annum;* X-ray examinations, 141; and clinical laboratory reports totaled 2,295.

As all students who matriculate are compelled to have a thorough physical examination, it enables us to inform them correctly as to their abilities for physical exercises, classroom work, or college sports. Numerous defects, focal infec-

tions, and occasionally graver conditions which might also jeopardize the health of others, and be a menace to the community, are detected and treated. Often students are relieved of imaginary diseases. In 1915 we found that 65 per cent of the freshmen had errors of refraction, and our oculist wrote seven hundred prescriptions for proper glasses. The dental examination one year revealed that only eighty-two men and fifty-six women out of the whole 1,513 entrant enrollment had normal teeth. Numerous other illustrations could be cited, such as postural defects, diseased tonsils, chest diseases, and flat feet. Enough has has been said the presence of remediable defects as an argument for compulsory medical examinations.

One of two dental service rooms at Berkeley.

These entrants must have a satisfactory scar to show that they are properly immunized against small-pox or submit to vaccination. This is a University law. Since 1901, when this law was established, there have been no cases of small-pox among the students. Typhoid inoculation is not a compulsory measure.

Our dental service was added five years ago, as it was proved clinically that focal infections were responsible for many illnesses among the student body. A first-class equipment was installed and two full-time dental surgeons added to the staff. A charge of $1.50 per hour is the fee exacted. This includes material and x-ray negatives. The popularity of the service is evidenced by the appointments which are booked sixty to ninety days in advance. In 1918-19 the statistical summaries recorded 1,785 fillings and 1,324 other dental operations—another triumph in preventive medicine.

With the establishment of a compulsory lecture course in personal and community hygiene, prescribed for all freshman entrants, where the truths of preventive medicine are taught and correlated with an institution whose staff of well trained medical men and women labor in harmony for the interest of the student body,—by this process of group study a definite contribution to the best type of curative medicine has been achieved. Certainly safeguarding the health of the students has been established through these agents at a great university on the Pacific Coast.

The cold treatment room is one of the provisions at Berkeley for safeguarding the students' health. Open air decks are provided for the treatment of anemic and pulmonary cases, and there is a solarium for convalescents.

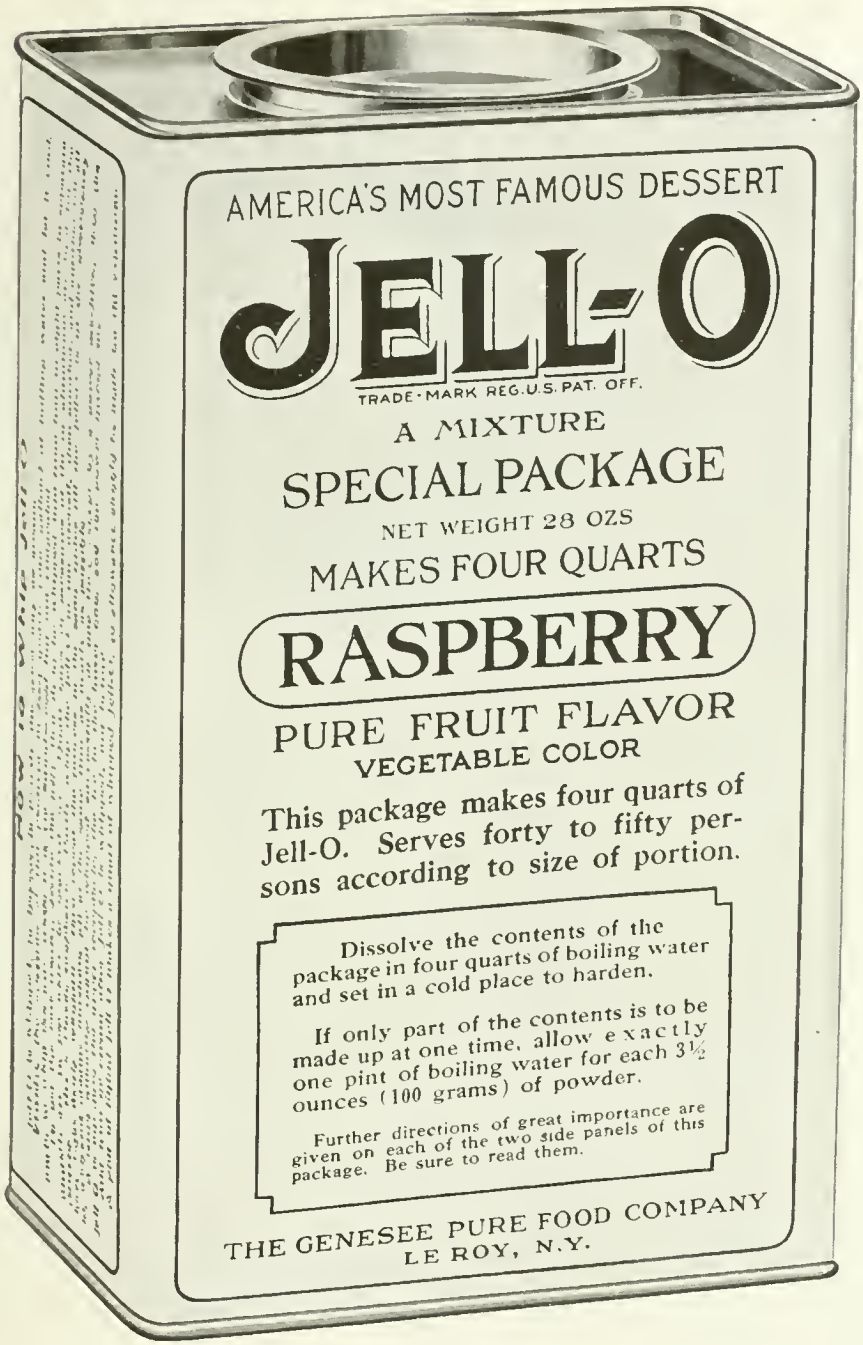
HEALTH CENTER IN NEW HAVEN

Announcement is made of the organization of the Health Center in New Haven, Conn., under the combined leadership and financial support of the four chief health agencies of the city, the Municipal Department of Health, the Visiting Nurse Association, the New Haven Chapter of the American Red Cross, and the New Haven Medical Association.

The Health Center will aim to build up the health as well as to detect the physical defects of the twenty thousand inhabitants in the selected district, whom are largely of Italian stock. Free medical examinations, nursing care in the home, and intensive educational work will constitute the main lines of activity. Medical treatment will not be given at the Center, but individuals will be referred to the abundant medical facilities of the city. It is expected that the Health Center will be in full operation by July 1. Its temporary quarters are 184 York street.

The Board of Control is composed of the following members: Prof. C.-E. A. Winslow, chairman; Mr. F. W. Wright, health officer; Mr. A. T. Hopkins, treasurer; Drs. O. J. Bartlett and N. Mariani of the Board of Health; Miss M. T. Dana and Mrs. L. M. Daggett of the Visiting Nurse Association; Mr. Thomas W. Farnam and Mrs. N. G. Buckland of the New Haven Chapter American Red Cross; and Drs. R. E. Peck and F. M. Sperry of the New Haven Medical Association.

The Executive Committee consists of the chairman of the Board of Control, Professor Winslow, the health officer, Dr. F. W. Wright, and the superintendent of the Visiting Nurse Association, Miss Harriet Leck. The director of the Health Center is Mr. Philip S. Platt, M.A., C.P.M., whose experience and training especially fit him for the enterprise.


AMERICA'S MOST FAMOUS DESSERT
JELL-O
TRADE-MARK REG. U.S. PAT. OFF.
A MIXTURE
SPECIAL PACKAGE
NET WEIGHT 28 OZS
MAKES FOUR QUARTS
RASPBERRY
PURE FRUIT FLAVOR
VEGETABLE COLOR
This package makes four quarts of Jell-O. Serves forty to fifty persons according to size of portion.
Dissolve the contents of the package in four quarts of boiling water and set in a cold place to harden.
If only part of the contents is to be made up at one time, allow exactly one pint of boiling water for each 3½ ounces (100 grams) of powder.
Further directions of great importance are given on each of the two side panels of this package. Be sure to read them.
THE GENESEE PURE FOOD COMPANY
LE ROY, N.Y.

The Easy and Sure Way For the Nurse

Among the dishes which the nurse likes to prepare are the refreshing and attractive salads of which the foundation is Jell-O. These are made by adding to the Jell-O chopped celery and bits of fruit and nutmeats. They are moulded in teacups or little moulds and each is turned out on a lettuce leaf.

Such a dish may be called a salad or a dessert and be very good as either. If served as a salad, Mayonnaise or other salad dressing goes with it.

As made of Jell-O, which contains all the ingredients that would have to be added if plain gelatine were used, there is a great saving of time and labor, and the result is always satisfactory. The nurse who uses Jell-O for her dainty dishes is never obliged to depend upon luck. She can easily and surely accomplish what she used to do with tedious detail and with qualms as to the outcome.

Jell-O is made in six pure fruit flavors: Strawberry, Raspberry, Lemon, Orange, Cherry, Chocolate.

The new Special Package for hospital use contains enough Jell-O to make four quarts of jelly as against one pint of the regular small size.

THE GENESEE PURE FOOD COMPANY
Le Roy, N. Y., and Bridgeburg, Ont.

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.

H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

22-24 East Ontario Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

BOOKS OF THE MONTH

CONCERNING SOME HEADACHES AND EYE DISORDERS OF NASAL ORIGIN. By Greenfield Sluder, M. D., clinical professor and director of the Department of Laryngology and Rhinology, Washington University Medical School, St. Louis.[3]

The author has produced a work of enduring merit. He has treated some of the very vexatious problems of rhinology in a masterly manner. The non-suppurative diseases of the nose have been passed by, on the part of the average practitioner, as a necessary evil.

The book opens with an introductory chapter on the pathological anatomy by Jonathan Wright. Vacuum frontal headache is the subject of the second chapter. The material for this has been drawn from 580 cases. The author states that "eighteen years of observation of this class of cases leads me to believe Ewing's sign to be trustworthy." He also observes that the pain of vacuum frontal headaches is never as severe as that produced by suppurating sinus, that there is never any pus, never blindness, and never any change in the globe. The pathology and treatment are fully covered. In the chapter on the syndrome of nasal (spheno-palatine, Meckels) ganglion neurosis, the method of injecting the ganglion through the nose is described. Numerous case histories are recorded demonstrating points brought out in the text. The book contains a short bibliography.

A COURSE IN FOOD ANALYSIS. By Andrew L. Winton, Ph.D., author of "The Microscopy of Vegetable Foods"; reviser of Leach's "Food Inspection and Analysis"; translator of Hanausek's "Microscopy of Technical Products."[5]

This book, which is intended to serve as an introductory text in food analysis, has been written in a clear and concise style. The methods are selected judiciously and the descriptions are elaborate, but to the point. Some illustrations in the book are possibly superfluous. It stands to reason that a student who wants to follow up food analysis, and who has had a previous course in chemistry, knows how a Bunsen burner with a wire gauze cap looks, or how an iron mortar looks. Most illustrations, however, are very useful and help to illustrate the subject in question.

DISEASES OF NUTRITION AND INFANT FEEDING. By John Lovett Morse, A.M., M.D., professor of pediatrics, Harvard Medical School, and Fritz B. Talbot, A.B., M.D., instructor in pediatrics, Harvard Medical School, chief of Children's Medical Department, Massachusetts General Hospital.[8]

The book presents the various views expressed in literature on the metabolism of infancy and the diseases of infancy and childhood. Die Saüglingsernährung und Sauglingsoffwechsel, by Langstein and Meyer, served the same purpose for several years. However, this is the first attempt in English at a contribution of this character.

This book of Morse and Talbot is rendered the more valuable by virtue of the fact that one of the authors (Talbot) has done a great deal of experimental work on the metabolism of infancy and he is, therefore, well qualified to present a critical analysis of the work of others.

In the second edition of the book a number of references have been added and the literature has been brought up to 1918. The volume fulfills a want in American literature as a book of reference.

3. C. V. Mosby & Co., St. Louis, 1918.
5. John Wiley & Sons, Inc., New York, 1917.
8. The Macmillan Company, New York, 1920.

Measuring cap which double-seals the cork.

SOFOS

SOFOS is a product of the research laboratories of the General Chemical Company—one of the world's leading scientific organizations—a strictly American institution.

SOFOS Cuts Out Middle Reactions

Effervescent preparations of sodium phosphate usually contain citric and tartaric acids, which may not be entirely satisfied and form citrates or tartrates which in some cases are of doubtful or prejudicial action and effect.

SOFOS

contains only monosodium phosphate and sodium bicarbonate which effervesces on addition of water to form di-sodium phosphate and nothing else.

SOFOS is mild, pleasant and reliable in action.

SOFOS is agreeable and acceptable to the taste.

SOFOS does not gripe, "nag" or induce subsequent costiveness.

It is the ideal preparation for use in children, old people or debilitated or delicate persons.

Moreover, one part of SOFOS has almost double the phosphate value of the U. S. P. strength.

A clinical test of SOFOS will demonstrate, beyond question, the truth of its claim to be the most elegant, eligible and efficient preparation of sodium phosphate, at the disposal of the medical profession for whose use it is intended and will be ethically advertised.

SOFOS has been accepted by the Council on Pharmacy and Chemistry of the A. M. A. for inclusion in New and Non-official Remedies.

Ask your pharmacist for SOFOS. If he hasn't any, notify us.

Literature on request to

GENERAL CHEMICAL CO.
SPECIALTIES DEPARTMENT
NEW YORK

Gradwohl Laboratories

Chicago—7 W. Madison St.
St. Louis—927 N. Grand Ave.

are especially equipped to satisfy the needs of

Industrial Surgeons

By reason of well equipped laboratories and skilled workers we are prepared to handle all your problems in this line.

Every Wassermann is supplemented by a Hecht Gradwohl Blood Test which adds ***thirty per cent*** to the column of correct positives.

Our blood chemical methods are accepted everywhere as standard.

Sanitary Water Analyses

Medicolegal Problems of all kinds.

Consult us freely. Literature and containers Free on Demand.

Let us assist in the great work of INDUSTRIAL MEDICINE.

DOCTORS GET LATE START IN LIFE

It was brought out at the Chicago convention of the Council on Medical Education that the average student completes his medical education at the age of twenty-nine. European medical training is scheduled so as to enable the practitioner to begin at the age of twenty-five. It is proposed to shorten the period of preliminary training in American medical schools so that it will not be necessary for a student to spend seven years in college and medical school before obtaining a medical degree.

SOME PRESENT DAY CARDIOLOGIC TOPICS

Suitable tests for cardiac efficiency have been the subject of special study for fifteen years, says Dr. Thomas E. Satterthwaite in the *New York Medical Journal* in a discussion of various tests. Dr. Satterthwaite objects to the use of strong drugs for diagnostic purposes, and emphasizes the difficulty of determining the normal energy-index.

For this reason the cardiologist, of all the specialists, is perhaps the most benefited by the scheme of having what is known as "group diagnosis." While this plan had been carried out for more than a quarter of a century in the wards of some of the large New York hospitals, it did not rise to the dignity of a regular feature of an institution until it was adopted by the Manhattan State Hospital for the Insane, on Ward's Island, in or about 1902, where complete diagnosis were made by a staff of paid specialists in every case admitted. The present scheme has three or four diagnosis clinics in operation in Greater New York. "Examinations and reports are made for physicians only, in each special department, and the combined results are furnished, together with the essential points in each case. . . . One may make the broad statement that thorough, comprehensive examinations can no longer be made by either specialists or general practitioners without help from their confrères. The field is now so large that no one man is competent to cover it properly," says Dr. Satterthwaite, "therefore diagnostic clinics, with 'group diagnoses,' have come and are going to stay."

PAN-AMERICAN ALLIANCE FOR PHYSICIANS

The original plan of the American College of Surgeons to include in its Fellowship all worthy surgeons of the American continents has been definitely promoted by the official visit by Dr. William J. Mayo, president of the College, and Dr. Franklin H. Martin, secretary general, to Peru, Chile, Argentine, and Uruguay. Everywhere these representatives of the American College of Surgeons were received with due regard for their mission. An interesting account of their itinerary is given in the current issue of *Surgery, Gynecology and Obstetrics*. Medical schools connected with national universities were visited at Lima, Santiago, Buenos Aires, and Montevideo. In general facilities, free beds, clinical material, and general requirements these compare favorably with the facilities of other countries. The mission was favored by meeting strong groups of each faculty.

A great desire was shown on the part of surgeons to cooperate and become affiliated with the College of Surgeons and in conference selected groups of eligible men were submitted, the published list containing the representative surgeons of Santiago, Valparaiso, Buenos Aires, and Montevideo. These men are characterized as "men of world vision" whose dread of narrow provincialism augurs well for a larger affiliation.

Six Popular, Council-Passed "Hits"

Chlorazene Surgical Cream

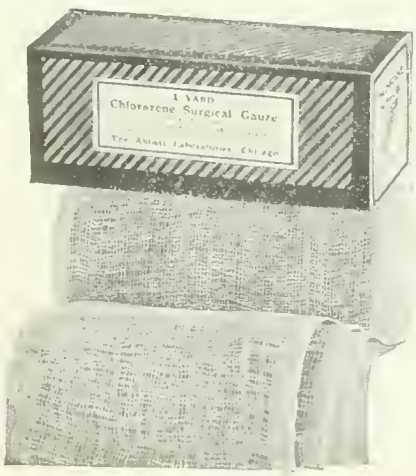
A beautiful "disappearing" cream, prepared according to the formula of Carrel and Daufresne, of Rockefeller Institute; contains 1% of Chlorazene in a neutral sodium stearate base. Powerfully germicidal. Ideal for application to wounds. Very effective in erysipelas, carbuncles, eczema, dandruff, pruritus and other skin diseases. List price: per jar, 80c.

Net price 60c

Chlorazene Surgical Gauze

This gauze contains 5% of Chlorazene. When applied to a discharging wound, cavity or sinus, the antiseptic is given up sufficiently to exert the characteristic germicidal action of Chlorazene.

List prices: 1-yard roll, 55c; 5-yard roll, $2.40;
Net prices: 1-yard roll, 41c;
5-yard roll..... $1.80



Procaine

A Trustworthy Local Anesthetic

Procaine (Abbott) is manufactured by The Abbott Laboratories under license from the Federal Trade Commission and was supplied to the Army and Navy during the war. It is less toxic than cocaine and is probably the safest and best local anesthetic that can be used.

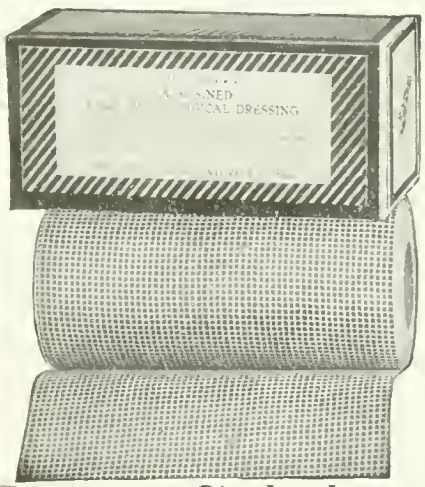
Procaine-Adrenalin Tablets, No. 1.
Bottles of 100. Net..... $1.28

Parresined Lace-Mesh Surgical Dressing

By the use of this Dressing it is possible to apply an antiseptic (Dichloramine-T-Chlorcosane is best), directly to the wound, at the same time providing for drainage, and assuring its removal without pain or discomfort, and with a saving of time and expensive gauze and cotton over-dressings.

List price: 10-yard roll, $3.50;
Net price..... $2.63

Also supplied in boxes of 6 envelopes, each containing a strip 6x18 inches. List price: $1.60;
Net price $1.20



Cinchophen

(Abbott)
(Phenylcinchoninic Acid, U. S. P.)

Indicated in Gout. This is probably the best of all remedies for Gout and the many affections of uric-acid origin. The net price per tube of 20 tablets is..... 94c
Bottles of 100 tablets.....$4.50
Ask your druggist for Abbott's Cinchophen.

Barbital

(Abbott)
(Diethylbarbituric Acid)

This is one of our safest hypnotics and sedatives. One to two 5-grain tablets taken at bedtime will induce quiet, restful, dreamless sleep.

Net price per 100 tablets $3.38

PRESCRIBE BARBITAL (ABBOTT)

Complete Price List of the Abbott products or special literature on any of the items shown above, will be sent on request. Your orders will be filled promptly, direct through our home office or convenient branch points, or through the regular channels of the retail drug trade or physicians' supply houses. Urge your druggist to prescribe for your prescription convenience. Prices are subject to change without notice. Get your order in early.

THE ABBOTT LABORATORIES

Home Office and Laboratories Dept. 27 Chicago, Ill.

NEW YORK SAN FRANCISCO SEATTLE LOS ANGELES TORONTO BOMBAY

Taste and Flavor Aid Assimilation

It is self-evident that calories without proper digestion and assimilation cannot impart adequate sustenance and recuperative powers to a patient.

Appetizing flavor in foods adds to the pleasure of eating. And since a keen relish of food is known to stimulate the flow of gastric juices, it must also be a prime factor in determining the degree of assimilation.

SAUER'S
PURE FLAVORING EXTRACTS

make the scientifically prescribed diet extremely attractive to those with jaded appetites, so that the treatment is satisfactory to both the physician and the patient.

Various American and European Expositions have awarded seventeen highest awards to Sauer's Extracts for Purity, Strength and Flavor.

Sauer's is the largest selling brand in the United States.

Further particulars free for the asking

The C. F. Sauer Company

Richmond, Virginia

ANATOMICAL ASSOCIATION IN CHINA

A call recently sent forth for the organization of an Anatomical Association in China offers in its favor the statement that one of the objects of such an association is research which may find in the skeletal remains examples of long sought for intermediate forms that have been lost sight of in the differentiation of mankind which it is believed took place in central Asia. In a recent contribution to the China Medical Journal, Professor E. V. Cowdry emphasizes that racial problems are uppermost in China and that through the study and measurement of Oriental types measurements can be standardized and much can be determined in this way as to the fixity and plasticity of types.

IS NARCOTIC DRUG ADDICTION A DISEASE?

The interest of physician and health officers is centered in the test case of a physician being tried under the Harrison Act for prescribing according to his own best judgment for his patients suffering from addiction disease. The Federal courts will undertake to determine in the case of Dr. E. S. Bishop whether a physician may undertake to control the use of habit producing drugs in a patient by the further administration of such drugs, or whether such procedure is to be regarded as pandering to a class of degenerate criminals. Much profitable definition is likely to ensue, in view of the high standing and authoritative position of Dr. Bishop, who in his own writings has mentioned the difficulties of the practitioner of medicine who in treating such patients is "always in constant uncertainty as to the meaning and possible administrations of the laws."

SCHICK TESTS AND TOXIN ANTITOXIN

The following table gives a summary of Schick test work and toxin-antitoxin administration, recently completed, in an institution for children in New York City, which will be of considerable interest to all physicians.

RESULTS OF SCHICK TESTS AND CULTURES IN A CHILDREN'S INSTITUTION

Department.	Number Tested.	Schick Positive.	Percentage Positive.	Positive Culture.	Positive Culture and Positive Schick.	Percentage, Positive Culture and Positive Schick.
NURSERY—Children 3-5, inclusive.						
Boys	26	14	54%	6	5	83%
Girls	18	8	50%	3	2	66%
Totals	42	22	52%	9	7	78%
JUNIORS Children 6-10 years, inclusive.						
Boys	46	27	58%	12	7	58%
Girls	42	26	62%	6	4	66%
Totals	88	53	60%	18	11	62%
SENIORS Children 11-12 years, inclusive.						
Boys	30	9	30%	5	1	20%
Girls	39	17	43%	3	1	33%
Totals	69	26	36%	8	2	25%
Grand Totals.	109	101	54%	35 (17%)	20 (10%)	57%

All children who, as listed above, gave positive Schick tests, have been immunized with three injections of toxin-antitoxin, and the Department's Bureau of Laboratories is testing the virulence of the diptheria bacilli isolated from the throats of the children. The large number who gave positive cultures furnishes evidence of the great importance of such work as is concerned. It will be noticed that the number of cases harboring diphtheria bacilli and also giving a positive Schick test decreases with the age—agreeing with the incidence of clinical diphtheria.

As all cases giving a positive Schick reaction have been immunized with toxin-antitoxin, the home may be considered, at this time, to possess an immune child population.

Simmons Institution Bed Design 1962

Physicians and Hospital Workers

Who Consider the Comfort of their Hospital Patients above everything—are greatly interested in this New Series of Simmons "Private Room" Beds.

Every physician knows that most people sick enough to require hospital care, dread the ordeal as much on account of hospital surroundings as anything else.

The idea of being transferred from their own cozy home into a hospital private room that is naturally bare and strange, causes a restless homesickness that is hard to overcome.

It is only reasonable then, in view of a Physician's interest in his patient's welfare, that the medical profession should be interested in this new series of Institution Beds, one of which is illustrated above.

When the Beds in hospitals (in private rooms especially) are selected with the idea of making patients feel at ease, and "at home," restless homesickness and dread will be greatly minimized. The patient will feel less strange. They will sleep better, and the sleep they get will do them more good.

For the information of Physicians and Directors of Hospitals, it may be said that these new beds are built according to accepted hospital standards in every way. Except for their appearance and superior comfort qualities, and the fact that they are made in a variety of pleasing finishes, their construction is the same as any other of our Institution Bed Designs.

Briefly, they mark an entirely new idea in bed design as applied to hospital requirements. Further information and detailed specifications will be mailed to any Physician, Hospital Director or Superintendent promptly upon request. Address:

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

HYCLORITE

Concentrated Sodium Hypochlorite Solution

ALWAYS READY—Just add water. No time lost—no waste.

RAPID SOLVENT of pus and necrosed tissue. High germicidal power.

Used FULL STRENGTH or DILUTED according to surgeon's need. Successful WITHOUT Carrel technic. Makes correct DAKIN solution in one minute.

Accepted by A. M. A. (N. N. R.)

Sample and literature on request

GENERAL LABORATORIES

4618 Dickinson St.
Madison, Wisconsin

Electrically Lighted Surgical Instruments

Twenty years in the manufacture of electrically lighted surgical instruments, if it has not brought perfection in instrument construction, at least has kept the Electro Surgical Instrument Company abreast of the advances made by leading specialists of the medical and surgical profession.

So it is that instruments stamped "E. S. I. Co." speak of the accomplishments of the noted men whose suggestions are embodied in their construction and a service of maintenance possible only in instruments of our manufacture.

Users of instruments stamped "E. S. I. Co." are certain sharers in this service.

Origination begets imitation. Be sure of our exact name.

Illustrated Catalogue Sent Upon Request

ELECTRO SURGICAL INSTRUMENT COMPANY

Rochester, N. Y.

INDUSTRIAL SURGEONS ASSOCIATE

The organization of an Industrial Surgeons' Association is projected, the Association to affiliate with the Chicago Medical Society. Dr. George D. J. Griffin is temporary chairman, and Dr. Horace C. Lyman temporary secretary of the new organization.

INDIANA GIVES TIME CREDITS FOR WAR SERVICE

An important ruling has just been announced by Dr. M. S. Canfield, treasurer of the Indiana State Board of Medical Registration and Examination. Hereafter, service in the Army, Navy, or Marine Medical Corps may be accepted as time credits for students who wish to take the examination to practice in the state. In adopting the resolution, the Board expressed itself as believing that active service during the war was equivalent to the two years in college, which has hitherto been required of students.

EXAMINATIONS FOR CANAL SERVICE

Open competitive civil service examinations will be held at various places throughout the United States on May 5 and July 7 for physician for Panama Canal Service. The entrance salary is two hundred dollars a month with higher rates for special appointments. Both men and women are eligible. They must be unmarried, must be graduates of accredited medical schools, and must have had at least one year of graduate hospital experience. Application should be made to the Civil Service Commissioner, Washington, D. C., or the secretary of the local United States Civil Service Board.

AN AIR MEDICAL SERVICE

Creation of a special aviation medical service in the army medical corps is expected materially to reduce fatalities among fliers on active service, according to an official announcement.

Statistics compiled by British military authorities are quoted as showing that during the first year of the war 90 per cent of the deaths among British aviators were recorded as physical defects of pilots, 8 per cent to defective planes, and 2 per cent to enemy activity. After the establishment of the air medical service the percenage of deaths due to the faults of the pilots was reduced to 12.

STATISTICAL METHODS AND ACCIDENTS

That statistics are dry and rather useless arrays of figures is disproved by the effect of accident statistics in accident occurrence, says Royal Meeker in the March *Labor Review*.

The analysis by the United States Bureau of Labor Statistics of accidents by length of disability and severity of injury directed the attention of those responsible for the direction of industry to the causes of the more severe accidents and the resulting correction of faulty lay-out equipment and the use of mechanical methods have almost entirely eliminated certain accidents with heavy toll of deaths. Statistics indicate that the education of the workmen reduces very greatly the number of accidents.

Dr. Meeker argues for the adoption in all the United States of uniform accident reporting blanks, these reports to be tabulated according to the rules of the International Association of Industrial Accident Boards and Commissions, to facilitate their speedy and economical analysis and the incorporation of the findings in the objectives of the safety movement.

HAY-FEVER
Can be Prevented

Industrial physicians and health officials will be especially interested this year in Pollen Antigen because through its use absenteeism and lowered production due to Hay-Fever can be prevented.

CLINICAL results covering more than 12,000 cases, attest the value of **Pollen Antigen.**[1] During the past five years, from 1915 to 1919 inclusive, **Pollen Antigen** has afforded relief from hay-fever by conferring an average protection of 82.7%.

THE treatment with **Pollen Antigen** should be started six weeks before the date of the usual onset of hay-fever. Even in those not protected, the symptoms are usually rendered mild and the attack cut short.

POLLEN Antigen is now universally used for hay-fever because:

1. Contains all the antigenic properties of pollen grains.
2. Will not deteriorate.
3. Standardized by complement fixation.
4. May be used without preliminary diagnostic tests.
5. Gives uniformly consistent results each year.

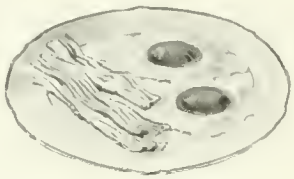
REQUESTS for further information are invited.

Lederle Antitoxin Laboratories

511 Fifth Avenue
New York City

Chicago **Kansas City** **New Orleans** **Minneapolis**
San Francisco **Montreal** **Winnipeg**

[1]The name POLLEN ANTIGEN denotes the product of the Lederle Antitoxin Laboratories.



14 Cents

is about the cost at this writing of a breakfast of bacon and eggs.

One Cent

is the cost of a big dish of Quaker Oats. Yet the oat is almost a complete food—nearly the ideal food. It is well-balanced, rich in minerals, and it yields 1810 calories per pound.

Saves 90 Per Cent

Quaker Oats costs 5½ cents per 1000 calories. At present writing meats average about 45c, fish about 50c, and eggs about 70c.

So Quaker Oats, for the same calory value, costs about one-tenth the average cost of the foods we cite.

Do you not think that in these days such facts should be made known?

Quaker Oats

Extra-flavory oats which cost no extra price. They are flaked from queen grains only—just the rich, plump, flavory oats. We get but ten pounds from a bushel. Such flakes make the oat dish doubly likable.

The Quaker Oats Company
Chicago

3285

NATONAL CONFERENCE ON IMMIGRATION

For the first time in this country a conference was held in New York April 9, 1920, in which five hundred delegates, representing thirty racial groups, together with national leaders in industry, finance, agriculture, labor and education met to discuss the complex problem of the immigrant. Coleman du Pont, chairman of the Board of the Inter-Racial Council, declared that the expansion of our industries by means of imported labor makes it obligatory to provide for such immigrants a place for their proper development.

Selection of immigrants on a basis of nationality is absurd, said Louis Marshall in analyzing the numerous immigration bills now before Congress. Exclusion of the mentally, morally, and physically unfit he declared sound, but the literacy test should be removed, at least from agricultural laborers and those who desire to engage in domestic service.

Racial antipathies, civic education, naturalization, and other phases of the process of assimilation were discussed. It is just as essential, it was agreed, for America to have immigrants to develop as it is for immigrants to have America. A proper understanding of the interdependence involved must be reached and a proper working basis achieved if the immigrant is to develop and prosper, and if America is to avoid receiving the European discard.

THE NATIONAL TUBERCULOSIS ASSOCIATION

NO better index of the broadened scope of the attack on the tuberculosis problem can be cited than the range of subjects covered and the character of the material presented at the recent meetnig in St. Louis of the National Tuberculosis Association. It is now fairly well appreciated that a properly organized tuberculosis campaign constitutes a community health enterprise in which is overlooked no contributory factor to depletion or reduced resistance, whether nutritional, industrial, inherited, or dependent upon public health conditions. The importance of the last named factor is apparent in the light of the statement by Dr. Victor A. Vaughan, president of the association, that nearly one hundred per cent of our urban population suffer from tuberculous infection. Clearly if "tuberculosis is incident to our civilization," it becomes the task of civilization to eradicate the scourge by thought-out means.

The need of early diagnosis was emphasized with the implied corollary that the concentration of effort must be on the early detection of the disease. The program of this section evaluated certain physical signs, brought out the latest developments in laboratory aids to diagnosis, classifications based on physical signs and the bearing of concurrent conditions. The value of these discussions to workers in the field of tuberculosis detection and prevention is attested by the personnel of the men presenting the various subjects. Experimental studies bearing directly on the problem were various nor was this work divorced from its direct clinical bearing, as several joint discussions provided the proper correlations. The lighting up of latent infections, heightened susceptibility from war strain or subsequent to influenza, the measure of vital capacity, what constitutes rest, remedial occupation, racial factors, each receiving its quota of earnest discussion. Gerald B. Webb, of Colorado Springs, was elected president.

ROYAL BAKING POWDER

ABSOLUTELY–PURE

The Prudent Housewife Uses No Other

Contains No Alum

FOR DIET CONTROL IN INFANT FEEDING

The choice of these dependable products affords the physician convenient means of selecting food mixtures suited to the individual requirements of individual cases.

MEAD'S DEXTRI-MALTOSE NO. 1

(With Sodium Chloride 2%)

For general use in infant feeding. Especially indicated in infants recovering from diarrhoea, infants with feeble powers of digestion who have tendencies to diarrhoea. Valuable as an addition to Protein Milk.

MEAD'S DRY MALT SOUP STOCK

For difficult feeding cases. Indicated in marasmus, weight disturbance (failure to gain), infants afflicted with recurrent diarrhoea from intestinal indigestion, and those cases occasionally met which do not do well on milk, water and sugar mixtures.

MEAD'S DEXTRI-MALTOSE NO. 3

(With Potassium Carbonate 2%)

For use in constipation, when boiled feedings are used, or where the addition of potassium to the infant's diet is indicated.

Full information regarding these products furnished on request.

MEAD JOHNSON & CO. Evansville, Ind.

Thermolite
LIGHT AND HEAT INFUSER

Delivers Radiant Light and Heat in PARALLEL Rays

EXTREMELY EFFECTIVE IN THE TREATMENT OF

Neuralgia	Gastralgia	Rheumatism
Arthritis	Earache	Lumbago
Dermatitis	Laryngitis	Neuritis
Dismenorrhea	Mumps	Ulcers
Shingles	Bronchitis	Cystitis

and many other conditions.

The industrial clinic or hospital equipped with this scientifically designed therapeutic lamp can quickly relieve many conditions which otherwise would cause layoffs of workmen and consequent reduction in industrial production.

The delivery of radiant energy in **parallel** rays affords deep penetration, thus reducing inflammation and promoting healing in a most efficacious manner.

Most therapeutic lamps designed for office or clinical use have a single large reflector with a high powered lamp in the center. This does not permit much adjustment in the intensity or illuminating area in front of the reflector, whereas with the Triplex the light can be projected in a curved or straight line, concentrated or diffused, to any degree, and all without focusing the rays.

Send for prices and free book, "Phototherapy."

ThermoLite is supplied in two forms—the **Triplex** for hospital clinics and office use, and **Simplex** (single lamp with or without stand) for home use.

H. G. McFaddin & Co.
39 Warren St., New York City

REJECTS SCHOOL NURSE BILL

A bill to require municipalities to maintain school nurses has just been rejected in Massachusetts, the opposition leading to its defeat being based on the ground urged by a minister that it would allow "inquisitors" to force their way into homes.

EFFECTVE DECREASE IN CRIME

The United States is spending one-third as much for handling criminals as it is for work in all of its educational institutions, said Dr. V. V. Anderson in a recent address before the Women's City Club of Cincinnati, and from 50 to 60 per cent of these criminals are suffering from nervous or mental afflictions which are responsible for the crime. One-tenth of the amount required to handle the results of crime and dependency devoted to the study of child character and personality as they exist in the public schools would effectively diminish crime. The feeble minded child and the psychopath of today constitute the backbone of future social problems. If dealt with early, half of these cases could be developed into useful citizens.

PUBLIC HEALTH SERVICE BUILDING REQUIREMENTS

The Public Health Service Report based on data from the War Risk Insurance Bureau, to the Committee on Public Buildings of the House of Representatives indicates that the service will be required to take care of 30,000 ex-service men during the ensuing year, these patients classified as follows: General medical and surgical, 7,200; tuberculous, 12,400; and neuropsychiatric, 11,000, a total of 30,000. The hospital needs are imperative. An appropriation is asked of $25,000,000 for construction or purchase of necessary hospital buildings.

PUBLIC HEALTH NURSES IN OHIO

With the organization of the state of Ohio according to the Griswold Health Law almost completed, there are 105 public health nurses now at work in Ohio, not including nurses employed by industrial plants. Using as a basis the census of 1910 for the state, this gives one public health nurse to every 14,320 population. Of the eighty-eight counties of the state, thirty-three have as yet no nursing service, although thirteen have made definite provision for the employment of one and are only waiting until one can be found, leaving but twenty counties without any provision for nursing service.

HOUSING IDEAS FROM ENGLAND

The Government and organized labor have an interesting plan. Under the Housing Act of 1919 the British government accepted responsibility for most of the municipal building enterprises. The workers, organized into a guild, supply and control all the labor, the Government pay the cost of the labor plus 10 per cent. The plan is to be put into effect first at Irlam, in the outskirts of Manchester.

Municipalities have reported building sites numbering 3,165, aggregating 29,435 acres and providing for approximately 294,000 houses. The collective system of dealing with the housing situation as against the competitive principle adhered to in the United States will be watched with interest.

The nutrient value of VIROL illustrated in a number of cases, particulars of which have been supplied by medical men.

CASE No. 6

Baby Coppin was a mere skeleton at one year old. He weighed under nine pounds. It was thought he would not live.

VIROL brought about this remarkable change. Here he is a fine, healthy, well-developed boy, without an ailment. Our records contain the authentic history of a large number of cases showing similar improvements. These have been communicated by the physicians in charge.

In glass jars: 50c, $1.00 and $2.00.

Liberal samples and interesting literature sent to physicians on request.

VIROL is nutritive food for invalids and children. It is a preparation composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

Children brought up on Virol have firm flesh, strong bones and beautiful color. Palatable in flavor—children love it.

Virol

Used in more than 2000 hospitals, sanatoria, and infant clinics in Great Britain

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank St., New York

ICHTHYOL

MERCK

Genuine ICHTHYOL is obtainable only in bottles or tubes under the Merck seal

Anusol
HEMORRHOIDAL
Suppositories

We do not believe in universal remedies.

Unless it means their being *used all over the world.*

Anusol Suppositories are a case in point.

That's why the "globe" trade-mark design is so appropriate.

Sample on request.

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX
WHITE, RED AND BLACK LABEL
AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

GRADUATE INSTRUCTION AT TORONTO

Graduates in medicine may now receive the most advanced type of clinical instruction at the University of Toronto. A standing committee has been appointed whose duty it is to give any graduate interested advice as to clinics and lectures which should be taken. This post graduate work will be supplemented by extension lectures arranged by the committee to aid medical societies or groups of physicians who desire to keep up to date.

MEDICAL INSPECTION IN MISSOURI

Missouri has been backward in caring for the health of school children, declares Dr. Herman E. Pearse, chairman of the Public Health and Legislation Committee of the Jackson County Medical Society. For the first time in the history of the Society the county delegation has been instructed to urge legislation, the measure advocated being to provide competent medical inspection in Missouri schools.

CONSERVE HEALTH OF WOMEN

The New York State Industrial Commission has recently issued a bulletin which considers the number of pounds weight a woman in industry may safely be allowed or directed to lift. Specific physical injuries and decreased production were both made the study of statisticians in England in an attempt to arrive at a definite ruling in this respect.

Fixing standards of weights that may be lifted by the woman worker depends upon the nature of the work. To shift a given weight from one bench to another is quite a different thing from carrying the same weight, or from having to lift it as high as the head.

New York leads in the limit of weight to be lifted by women in industry. In France, where hand carts, trucks and wheelbarrows are in common use, definite regulations have been evolved.

It is agreed that the effect of fatigue is shown in irregular attendance and that the effects of over-strain were removed on a change to lighter work.

FATIGUE AND INDUSTRIAL PROFIT

"The industrial worker," says Dr. Frederick S. Lee in the Public Health Reports of January 11, 1918, "from the standpoint of industrial physiology may be looked upon as bringing to the general physical equipment of the factory his own bodily machine, the most intricate of all the machines used in the plant. This machine must be understood, it must be constantly watched, it must be used intelligently, and it must not be abused. Like other industrial machines, it can be worked at different speeds, but unlike other industrial machines it cannot be worked for an indefinite period because it is subject to the limitations of fatigue.

"Fatigue delays work, diminishes output, spoils goods, causes accidents and sickness, keeps workers at home, and in all these ways is an obstacle to efficiency. How fatigue can be kept down to its lowest reasonable limit, how the working power of the individual can be maintained from day to day and from week to week and be made to yield a maximum output without detriment to itself and to others—in other words, how the human machine can be used so as to obtain from it the most profit—constitutes one of the greatest industrial problems of the day."

Kellogg's
KRUMBLED BRAN

An exceptional constipation corrective

An all-bran laxative food that has no resemblance to ordinary bran in appearance and flavor, Kellogg's Krumbled Bran has a delightfully pleasing goodness that appeals to the patient.

You never tasted bran so good—thoroughly cooked and ready to serve. Every package sealed in the Kellogg "waxtite" wrapper which positively insures the original freshness and flavor being retained.

This signature on every package guarantees the genuine— W. K. Kellogg

A request upon your professional stationery will bring a generous sample for your approval

KELLOGG TOASTED CORN FLAKE CO.
BATTLE CREEK, MICHIGAN TORONTO, CANADA

SANBORN

Blood Pressure Outfits

Stay On The Job

A toss into your bag—a tumble to the floor—the bumps of knock-about service—the hundred-and-one varieties of jolts and jars that spell disaster for an ordinary blood pressure gage.

They mean nothing in the life of a Sanborn.

Of course, the Sanborn is accurate, too. And its quality of rugged durability makes that inbuilt accuracy stick by the instrument.

PRICE $17.50

Made, guaranteed and sold direct to physicians by

SANBORN COMPANY

Makers of Scientific Instruments

79 Sudbury Street, Boston 14, Mass.

Mail the coupon and banish your sphygmomanometer worries.

Sanborn Company,
79 Sudbury Street,
Boston 14, Mass.

You may send me a Sanborn Blood Pressure Outfit on the following agreement:

I shall test the instrument in my practice. If it is satisfactory, I'll remit $17.50; if not I'll return it.

Name .....

Address .....

NEW PENNSYLVANIAN COMMISSION

A Commission has been appointed by Governor Sproul of Pennsylvania to investigate those accidents and sicknesses which are not compensated for by the Workmen's Compensation Act of Pennsylvania.

The members of the Commission appointed by the Governor are:

William Flinn, Pittsburgh; William Draper Lewis, Philadelphia; Dr. Francis D. Patterson, Philadelphia; G. Oram Ring, Philadelphia; William H. Kingsley, Philadelphia.

The members named by the president pro tem. of the senate are:

S. J. Miller, Clearfield; Morris Einstein, Allegheny; Charles W. Sones, Lycoming.

Those named by the speaker of the house are:

William T. Ramsey, Delaware; John J. Flynn, Elk; and Theodore Campbell, Philadelphia.

OFFICE OF MINISTER OF HYGIENE

Prime Minister Clemenceau having resigned, M. Millerand, his successor, was charged with the organization of a new cabinet. According to the *Lancet*, he has introduced an inovation by creating a new ministerial office of social hygiene, social insurance and social provision. The question first came up in 1902, at the time the law in regard to the protection of public health was passed.

It was again agitated when the application of the law was extended so as to include the antituberculosis and social hygiene dispensaries. In 1913, Dr. Vaillant, a Paris deputy, had taken the initiative and demanded the creation of the office of the minister of public health, and M. Mirman, at that time *directeur de l'assistance et de l'hygiène publiques au ministère de l'intérieur*, had favored such action. In 1916, Jules-Louis Breton, deputy of the Department of War, presented a more modest proposal to the Chamber of Deputies. He reported that the office of undersecretary of state for hygiene, in connection with the service of the minister of the interior, be established. The year before, the Government had created the office of undersecretary of state for the Service *de santé militaire;* but during the great epidemic of influenza that raged in France in 1918, it was found that the duties and functions of two duly appointed officials clashed, namely, the undersecretary of state for hygiene, associated with the office of minister of the interior, and the undersecretary of state associated with the Service de santé militaire. In view of this fact, M. Clemenceau organized, under his chairmanship, a ministerial conference, grouping together all the services having to do with health and hygiene, which at that time were scattered through five ministerial departments.

Under Prime Minister Millerand this temporary arrangement has taken a permanent form, and the office of minister of hygiene has been conferred on Jules-Louis Breton, as already stated. Having been chemical engineer, adviser to the chamber of deputies in matters of social hygiene, and author of the bill aiming to suppress the use of white lead in building paint, Breton was the logical choice for the new post.

DR. PAUL G. WOOLLEY GOES TO DETROIT

The National Pathological Laboratories have established a laboratory in Detroit, with Dr. Paul G. Woolley as director. Dr. Woolley has served in the University of Cincinnati as professor of pathology for the past eleven years and was dean of the college for several years.

FLAVORING EXTRACTS

ARISTON FLAVORING EXTRACTS

Test higher in purity and strength than is required by the Pure Food laws. They are made in a fully equipped laboratory by thorough and careful methods.

One Corner of Our Extract Laboratory.

Only the finest quality of vanilla beans is used in making Ariston Vanilla Extract. They are chopped fine, put into barrels, where they remain in maceration for many months, to allow the alcohol to extract the essence, which becomes rich and mellow in character, with a delicate flavor. It is then drawn off and drips through the percolators ready for bottling.

Besides the Vanilla, we make all flavors, including Vanilla-Tonka, Orange, Almond, Lemon, Peppermint, Wintergreen, Clover, Celery, Nutmeg, Sassafras, Anise, Onion, and others.

You can rely on our extracts as being pure and wholesome and the best that can be produced.

CALUMET TEA & COFFEE COMPANY

409-411 W. HURON ST. CHICAGO

"DEALERS DIRECT WITH YOU"

—1860-1920—

With the coming of 1920, the house of Reed & Carnrick will round out

Sixty Years of Faithful Service to the Medical Profession

From the inception of our business we have ever sought the friendship and confidence of physicians, and whatever results we may have obtained, we do not hesitate to attribute largely to the splendid co-operation that has been given us by the medical profession.

Therefore, in calling attention to this—our Sixtieth Anniversary—we wish to thank our many medical friends not only for their unfailing interest and good will, but also to assure them that, as in the past, we shall continue to regard their confidence as "our greatest asset."

REED & CARNRICK

Jersey City, N. J.

Thorner Brothers

Hospital Supplies and Aseptic Hospital Furniture

388 Second Avenue New York City

"One Quality and One Service—The Best"

Rubber Goods, Glassware, Instruments, Syringes, Brushes, Operating Tables, Cabinets, Stretchers, etc.

Its Quality
is Uniformly High

The uniformly high quality as well as the convenience and economy of Carnation Milk is widely recognized in hospitals.

It is just pure cows' milk from which part of the water has been removed by evaporation. No sugar nor any other substance is added.

When diluted with an equal part of pure water, Carnation resumes the consistency of raw milk having the original proportion of butter fat, casein, mineral salts, etc.

Write for special booklet, "Evaporated Milk in the Modern Diet."

Carnation Milk Products Company
534 Consumers Building, Chicago, Ill.,
or Stuart Building, Seattle, Wash.

Carnation
Milk

"From Contented Cows"

Sold by Grocers Everywhere

The label is red and white

HAZARDS IN RUBBER INDUSTRY

The Section on Rubber Industries of the National Safety Council is planning important activities in studying the health and accident hazards of rubber plants. At a recent meeting of the Committee it was decided to publish during the year twenty-six bulletins depicting the principal hazards in the rubber manufacturing industry and methods for their elimination. A tentative program for the 1920 Congress of this section called for three sessions and among the topics to be covered are: The present and future of safety in the rubber industry; health and hazards in the rubber industry; and methods of educating workmen in safety.

SIDE LIGHTS ON MORTALITY

The necessity for an intelligent selection of risks by life insurance companies has required an intimate knowledge of the mortality tables and the various insurance companies have been instrumental in furnishing the most definite and reliable statistics. Some interesting facts are brought out at the recent American Life convention at French Lick, Ind., in a paper read by Robinson G. Hunter. He suggests that the American Table of Mortality exaggerates the death rate at the younger ages. Comparing the mortality among American women with the expected deaths calculated by the American Men Mortality Table, the ratio of actual to expected was 110.8 per cent during the first five years, 91.5 per cent in the subsequent insurance years, and 94.4 per cent for all insurance years. The lower mortality among women than among men is due to the large proportion of single women among the insured.

There is, of course, a definite relationship between the mortality experienced and the plan of insurance. It is suggested that the thrifty and provident men who take limited payment and endowment insurance, because of their more methodical and careful life are subject to a lower mortality than the improvident class.

For the purpose of determining mortality according to habitat, the United States was divided into ten groups of states according to geographical situation and economic conditions. The group that shows the highest mortality was Alabama, Arkansas, Louisiana, and Mississippi. The middle western states show the lowest mortality. The wheat growing districts of Manitoba, Alberta, and Saskatchewan show the lowest mortality in Canada. Climatic factors alone cannot be responsible for the conditions shown in the mortality tables; living conditions, occupations, nationality, all contribute their part.

The death rate from accidents is interesting. Present investigation shows that the death rate from accident increases with the increase in attained age for any given duration of policy but decreases with the duration of policy in spite of the increased age, that there is a lower death rate from accident in the sixth and subsequent years than there is in the first five insurance years.

Almost without exception the mortality on policies of large amounts is unduly high. Reasons assigned are that applicants for large amounts regularly eat and drink more than the average, and are more subject to "The interested intrusion of unsound lives." In these cases it is suggested that more rigid medical examination should be employed to exclude the beginnings of degenerative disease.

If he has no love for the work he is engaged upon it becomes an intolerable burden, and having become a burden, it tends to react upon his character, and makes him slack, inattentive and careless.—Robert W. Mackenna.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2. JUNE, 1920 Number 6

NOTES AND COMMENT

GENERAL HOSPITALS AND TUBERCULOSIS

THE public endorsement by the Surgeon General of the United States Public Health Service of the resolution passed by the National Tuberculosis Association in 1916, recommending that general hospitals should admit tuberculous patients and provide separate wards for this purpose, opens a question that should now be kept before the public, the medical profession, and those who are responsible for hospital administration until it is properly disposed of. It is a question that cannot be satisfactorily settled except by actually carrying out the proposals made by the National Tuberculosis Association. It would be difficult to improve upon Surgeon General Cumming's admirable summary of the advantages to be gained by providing a limited number of beds for the tuberculous in every general hospital. Such provision would "insure earlier diagnosis, would make possible the training of interns, would popularize treatment in the home climate, would provide convenient facilities for the observation and prompt treatment of patients," and would eventually bring about "a sharpened perception and higher degree of skill by which the family doctor would make earlier diagnoses, and even forestall the development of clinical tuberculosis in the adult before a definite diagnosis is possible."

The question naturally arises how can impetus be given to, and recognition won for, this important public health movement. The attention of tuberculosis associations was in an earlier day largely concentrated on the establishment of sanatoriums; in a later stage of the tuberculosis movement the efforts of those interested were directed mainly to the creation of tuberculosis clinics. Experience has demonstrated the weakness of the tuberculosis clinic standing alone, without hospital support. It is not always easy to make a prompt diagnosis of cases which present themselves at the clinic. The opportunity to put patients to bed at once under adequate control is invaluable—indeed, indispensable to the proper functioning of a tuberculosis clinic.

The next great step in the tuberculosis movement should be a sustained effort to provide definite clinical facilities, however limited, in connection with every existing tuberculosis clinic. The tuberculosis clinics of the country should be immediately graded, and only those clinics which control clinical facilities be placed in Class "A" and publicly recognized as clinics possessing complete facilities. This, of course, does not mean that a new, diminutive, and relatively costly tuberculosis hospital should be created for each clinic now in existence. A more rational procedure would be the establishment of a working connection between the clinics and existing hospitals. The contribution of hospitals to the public service would thus be greatly enhanced, the clinics would be strengthened, the public mind would be swept free of harmful misconceptions, and hospital interns, into whose hands the whole public health movement of the future eventually must be committed, would not enter into practice, as they often do today, lacking in the power to make an accurate diagnosis and a reasonably correct prognosis in cases of pulmonary tuberculosis.

STATISTICS OF SICKNESS IN INDUSTRY

NUMEROUS industrial plants are instituting statistical records to obtain information concerning the amount of sickness among employees. This movement is fostered by various associations and by the United States Public Health Service. It is a commendable thing in itself if for no other reason than to call attention to the fact that sickness is a serious factor among workers.

There is danger, however, in the movement that misleading interpretations will be formulated on incomplete statistics. Not many plants have the facilities to check up sickness among the employees so as to make the statistics dependable. Unless there are physicians and nurses to whom the employee reports, or nurses who go out to the homes of those who are reported sick, there is small likelihood that the statistics will be correct. Sickness is quite universally the excuse for absence. Are the statisticians to rely on the unsupported statement of an employee that he was sick when he returns from an absence of two, three, or more days? What about the man who is sick for several weeks, and dies, or who, upon recovery, does not return to his old employment but finds a new job? His sickness does not appear in the statistics. Those who are depending upon the recording of sickness to determine sickness rates will be disappointed. No accurate figures of sickness can be obtained in this way except in those cases where, by insurance arrangements or by liberal employment of physicians and nurses, a complete check is kept on all sickness and its duration.

THE AMERICAN MEDICAL ASSOCIATION AND HEALTH INSURANCE

THE House of Delegates of the American Medical Association passed the following resolution at the New Orleans convention on the subject of health insurance:

RESOLVED, That the American Medical Association declares its opposition to the institution of any plan embodying the system of compulsory contributory insurance against illness, or any other plan of compulsory insurance which provides for medical service to be rendered contributors or their dependents, provided, controlled, or regulated by any state or Federal Government."

This resolution is decidedly a negative way to solve the problems which have been pushed to the front with the agitation for health insurance. It will help very little in constructive leadership on these problems.

The resolution raises many questions. Is it intended to disapprove the idea of health insurance completely? Does the Association believe in compulsory insurance which is not contributory, or in contributory insurance which is not compulsory? Is this resolution to be construed as opposition to compulsory accident insurance, or will the fact that such insurance is non-contributory protect it? Does the Association favor private insurance to public insurance? Does the Association mean to declare against the control or regulation of insurance by the state or Federal governments; or does it object, also to mutual benefits providing medical service? Is this resolution to be construed as an objection to the extension of public medicine, as, for instance, the plan outlined in the New York Health Center Bill.

The Association passed a second resolution which may help to clear up the ambiguity of the first. It declared for an investigation of "the relative adequacy of medical service and relations of the profession to the public." The study contemplated by this resolution will doubtless take into consideration the present status of the physician with respect, not only to medical service under accident and health insurance, but also the many phases of organized public medicine.

THE EIGHT-HOUR DAY AND EFFICIENCY

DISCUSSION has been rife for many years on the question of the relative production by the eight hour day and the ten hour day in industrial plants. Labor leaders, students of labor, and some employers have held that in occupations more or less monotonous the worker will produce as much in eight hours as he will in ten. This subject has recently been under expert analysis by the United States Public Health Service, and their conclusions ought to have weight when backed up by the practical demonstration of scores of industrial plants.

The main conclusion of the study is that "the eight hour day is not only more efficient than the ten hour day in industrial plants, but is more economical." It is found that with the eight hour day there is a steady maintenance of output.

It is believed by the Service that these conclusions are based on so careful a study and on so large a number of employees that they may safely be applied by industrial engineers generally. The report embodying these conclusions will be read with interest by everyone interested in increased production. If American industry is going to produce efficiently and continuously, it will be because the human factor in industry is attended to. If sound psychological principles call for the eight hour day, then it should be adopted, even at the expense of output; but when it promotes sound psychological principles, industrial efficiency, and economical work there should be no hesitation as to the immediate adoption of the eight-hour day.

A DISCUSSION OF MEDICAL PRACTICE RELATING TO HEALTH CONSERVATION

By S. S. GOLDWATER, M.D., Director, Mount Sinai Hospital, New York City

WHAT are the most important services that physicians can render?

Answer.—They are four: the first is to conserve the health of the well; the second, to detect and, when possible, to arrest incipient disease; the third, to restore the sick to health; and the fourth, to ease the sufferings of those who are sick, injured, old, or feeble.

Question.—Is the relative importance of these important functions generally recognized?

Answer.—It is not. In the medical schools the attention of instructors is fixed mainly on diseases having a definite pathology; it is to the diagnosis and treatment of these diseases that most time and thought is given, after indispensable preliminary instruction in the underlying physical and biological sciences. The brief courses that are given in preventive medicine and personal hygiene do not begin to do justice to these subjects, and the whole atmosphere of the school prompts the student to follow in the footsteps of teachers who have won fame and fortune, either as skilled laboratory workers or as clinical specialists.

Question.—You will nevertheless concede that remarkable progress in preventive medicine has been made in this country within the memory of men now living?

Answer.—True; but for this the medical schools can claim only part of the credit. A large part of what has been accomplished has been due to the efforts of sanitary engineers and social workers, untrained in medicine. Moreover, the progress that has been made is not enough. Those who regard the conservation of health as the foremost of human interests are far from content with what has been accomplished in preventive medicine. Certain communicable diseases have been either stamped out or brought well under control; while others, including the virulent and frightful pandemic disease that in 1918 destroyed from eight to ten million lives, continue utterly to baffle science. Then there are such diseases as syphilis, gonorrhea, and malaria—theoretically in the "preventable" class—and diseases susceptible either to arrest or control, such as tuberculosis, cancer, and diabetes, diseases of the heart, blood vessels, and kidneys, diseases of the digestive tract, or of the nervous system, the actual control of which is far from satisfactory, owing to the lack of personal cooperation.

Question.—To what do you attribute the want of cooperation? Are people not properly instructed in regard to the transmission or causation of such diseases?

Answer.—They are not. Physicians, who alone can do this teaching as it should be done, whose potential power to control and direct the conduct of men is greater than that of any other class, of whom it may be said that they hold the key to happiness itself, are themselves not properly taught; they scarcely realize the splendid opportunities that are theirs.

Question.—You appear to have in mind the further accentuation of public health education. If the efforts heretofore made have been unsuccessful, there must be a reason. What is it?

Answer.—Health organizations, both public and private, have attempted to educate large numbers of people by means of tracts and lectures. Latterly, health departments and numerous private organizations have tried by these means to popularize the principles of personal hygiene. However, it is well known that the application of the rules of hygiene must be varied with each individual, and most health officers are now ready to acknowledge that but little further progress is likely to be made except through the better ordering of individual lives by the people themselves. Health departments, unfortunately, cannot through existing machinery sufficiently influence the average man. As for private organizations which are active in the health movement, they are successful in their teaching only in proportion to the volume of their personal work,

The power of physicians to control the conduct of men is greater than that of any other class; it is not fully exercised because medical education is defective. The medical profession itself must study habit, character, and environment and assume leadership.

Sympathy and understanding, which physicians often lack, enable quacks and healers to make great inroads on medical practice, and the widespread influence of the family physician, supported by the health department, the hospital, the diagnostic center, the trained nurse, and the health visitor must be restored. Unless medicine is reformed, America will lead in quackery as well as in scientific medicine.

which is far from being adequate. Meanwhile, the great mass of the medical profession fail entirely to adopt the point of view or the methods of health conservation.

Promote Art of Right Living

Question.—You say that most physicians contribute nothing to health conservation. Are there any typical exceptions?

Answer.—The physician who is doing most to guard the health of his clients is the old-fashioned practitioner who watches over whole families, attending to their minor ailments as conscientiously as to their graver maladies, and accepting the duties of friend and confessor as well as the particular rôle which his professional training and title assign to him. He knows the heredity of his patient, the diseases through which he has passed in infancy and childhood, the consequences of these diseases, his personal habits, his occupation, and home surroundings. He is a psycho-analyst by intuition, if not by training; sympathy and common sense oftentimes serve him in the absence of any systematic knowledge of social science. To the great consultants and specialists, the intimate personal history of their patients, their spiritual and mental lives, are unknown and afford no particular interest; it is for this reason that specialists sometimes prescribe treatment which falls wide of the mark, and even excites ridicule.

Question.—Is this true of all classes of specialists?

Answer.—No; for example, psychoneurologists are beginning to inquire into certain phases of personal experience which play a rôle in the production of nervous and mental symptoms. Through their work and writings, and that of their co-workers, the psychologists, popular interest has lately been aroused in mental hygiene. This interest is a good thing; but what is needed is a deep and widespread interest, not in mental hygiene merely, but in the development of all of man's powers, in hygiene itself, in the long but by no means hopeless fight to gain for each individual the full enjoyment of health.

Question.—You said a moment ago that both private and public health organizations had attempted to teach hygiene by means of lectures and tracts. Have they not also employed health visitors, and do not health visitors inculcate ideas of right living, the importance of which you emphasize so strongly?

Answer.—Yes; public health visitors are doing splendid work. They would do still better if they were equipped with expert knowledge and were trained teachers which, as a rule, they are not. Nevertheless, to some classes of people the public health visitor is able to speak persuasively, even with a semblance of authority; but there are not enough public health visitors to reach all of those who are open to their influence, and there are many groups so constituted mentally or so placed socially that they cannot be reached by public health visitors at all, but who could be reached by physicians if only physicians could be induced to regard every patient as a pupil in need of instruction in the art of right living.

A Working Agreement Necessary

Question.—Cannot the health visitor and the physician combine? As a matter of fact, do not physicians readily cooperate with health visitors?

Answer.—Occasionally they do; more often they do not. When the services of a hospital social worker, whose functions are in large part those of a health visitor, are placed at the disposal of a group of physicians in hospital or dispensary, they are accepted eagerly by a few, grudgingly by others, while by most they are flatly rejected. Read carefully the reports of hospital social workers, and you will be astonished at the Herculean efforts that they have to make in order to establish themselves in the good graces of the doctors. Between the lines of nearly every such report may be read the story of an up hill struggle to interest the medical specialists of hospital and dispensary in facts of heredity, of habit, of character of environment, which play such important rôles in dulling the edge of existence, in lowering vitality, in defeating the attempt to win back life in all its marvelous fullness and richness of emotion, experience, and delight. A dozen years ago Richard Cabot expressed the opinion that it was not worth while for any outsider to establish social work in a hospital unless some physician in that hospital had already become aware of his need of such help. "The doctor must first have felt the difficulty of finishing the work which his diagnostic studies begin, or of carrying into effect his desire to go to the bottom of his cases, to find their cause—physical, chemical, hygienic, financial, domestic, emotional, or whatever it may turn out to be—and to root it out."

Question.—And do you, then, disagree with Dr. Cabot?

Answer.—I am disposed to believe that Dr. Cabot did not go far enough. In the long run, I think, attempts to interest the busy hospital surgeon, who is keyed up to the requirements of great emergencies, or of the learned internist, who is intent upon some obscure phase of pathology, in the "social, financial, and physical background out of which individual cases of disease emerge momentarily, and quite misleadingly, at the hos-

pital," will fail. I do not at all deplore this, for the minds of these men are occupied with other things, and are so occupied to advantage. Here are men who, as a rule, will not and should not be distracted with questions that are entirely foreign to their daily thought, occupation, and experience; questions to which their painfully acquired special skill and knowledge can contribute little or nothing of value. I believe that the time has come for hospital social workers to cease tagging after and trying to capture the interest of the medical specialists, for the chase is long and arduous, and the prize, if it could be won, is not worth the effort.

Question.—Do you mean that you are opposed to the growth of specialism in medicine?

Answer.—Not at all. The greater the number of specialties, the more skillful each specialist in his own sphere. However, the specialist cannot escape the defects of his qualities; the closer his study of pathology and symptomatology, the greater his technical ability as a surgeon or specialized therapeutist, the less his comprehension of heredity, character, and environment. The modern hospital or diagnostic clinic functions beautifully up to a certain point, but it does not function completely in a medicosocial or medicopsychological sense. The "system" has no eye to see or mind to perceive the human being behind the "case" with which its organization and records are chiefly concerned. It does not give adequate personal service.

Has it never struck you as singular that while medicine apparently has been growing more and more efficient, an ever increasing number of sufferers has been getting out of step with the regular medical profession and into step with all manner of quacks? An immense territory which should be controlled by educated physicians is in the possession of "fakers" who often supply what highly trained doctors fail to furnish, namely, that sympathy and understanding which are frequently needed in diagnosis, and which often tend to restore a patient's confidence in himself and his future. See how many different people are attempting to do the physician's job! Among others there are the serious minded and helpful but only half trained social worker, the untrained Christian Scientist, of dubious reputation and influence; and, in addition to these, a hundred varieties of pretenders, whom I shall not dignify by naming them. Medical investigators score victory after victory over our common enemies, the bacteria; hospitals are added to hospitals; ambitious schools of hygiene and public health are established and proclaimed as the centers of new thought and the inspirers of new achievement in medicine; health visitors go into the homes of the poor, teaching as well as they can the important facts of life; but the medical profession steadily loses ground. How can physicians take pride in their profession, while children remain poorly nourished, adolescents acquire vicious habits, young women become neurotic, and young men grow old before their time?

New Life in Old Service

Question.—And what remedy have you to suggest?

Answer.—Nothing less than the rearrangement of medical practice itself. Public health administrators must cease to depend on the tract or even on the health visitor to do the doctor's job. The hospital social worker must abandon her efforts to make the hospital organization do what it is not by its nature fitted to do. We cannot by mere legislation suppress the humbugs who worm their way into the confidence of the ignorant; they will continue to succeed until somebody better and more capable offers the help that is needed. The hope of universal health conservation cannot be realized without a new kind of medical service—an old order of service really, but an old order renovated and enriched by the application of new knowledge. Before medicine can function efficiently and completely it will be necessary to restore to life and to widespread influence the family physician, modernized and powerfully supported by precious instrumentalities which were not at the command of the family physician of an earlier generation.

Question.—What are the instrumentalities that you have in mind?

Answer.—They are: (1) A progressive department of health and welfare to fight off the big dangers that can only be dealt with through the exercise of public power—such dangers as the polluted water supply, epidemic diseases, the filth of the city, and the greater but less conspicuous filth of the country; and all the dangers to life and limb that lurk in modern industrial society. (2) Centers for the study and diagnosis of obscure diseases, commanding the best specialized clinical and laboratory aid. (3) Hospitals for the acutely sick, equipped to carry out diagnostic, therapeutic, and nursing procedures which cannot be conducted as well elsewhere. (4) Nurses qualified to attend the sick in their homes. (5) Health visitors for the well and the near well, who are ever pursued by sickness which is always ready to strike the unwary.

Question.—What sort of training do you propose to give to the family physician? Is he to study medicine as it is now taught in our best medical schools?

Answer.—The physician who undertakes the kind of practice that I have in mind will require, in addition to the teaching current in the medical schools, an ampler knowledge of hygiene, an understanding of eugenics, a thorough knowledge of the psychology of character and habit, and a command of those phases of social science which have a bearing on the health of individuals. Above all, he will need to be inspired by an instinctive love of man. "Intelligence and instinct are turned in opposite directions; the former toward inert matter, the latter toward life. Instinct is sympathy. It is to the very inwardness of life that instinct leads us."

Question.—In what manner will the "family" physician of the future practice?

Answer.—He may practise individually and be effective, provided he is ready to call to his assistance, when he needs them, the agencies which I have just enumerated. The rich will profit by his sympathy, skill, and strategy no less than the poor. Much of his best work will be done, I think, in the district "health center" of the future, which the hospital and diagnostic clinic will serve as important laboratory aids. His principal object will be the conservation of health; his method, the method of personal service. He will look and call upon the members of the hospital staff as a high order of technicians, just as the internist and the surgeon now utilize and prize the services of the skilled bacteriologist, pathologist, chemist, and radiologist.

Train Three Medical Groups

Question.—But in order that all this may be brought about medical education will have to be completely recast?

Answer.—Yes; for the future order which is here outlined three groups of medical men will have to be trained: (1) The consulting or hospital group, including the present laboratory workers, experts in the detection and classification of morbid processes—doctors of disease, the basis of whose art is pathology; (2) The public health doctor to whom belongs the prevention and control of epidemics, the practice of sanitation and public hygiene, and the important task of public health education; and (3) The health doctor or body physician, whose aim will be the conservation of the health of the individual and who must have an ample knowledge of medicine, the skill to seek out and the strength and cunning to control all the forces that impinge on the life of the individual, threatening him with injury to body, soul, or mind.

Question.—And when all this has been accomplished, what will become of "hospital social service?"

Answer.—There will be no "hospital" social service; the hospital will confine its efforts to the cure of the sick, the study of disease in its more pronounced manifestations, the teaching of clinical and laboratory medicine, and the training of nurses. Lectures and tracts alone will not usher in an era of health conservation. The rules of hygiene vary in their application, and personal instruction is indispensable. The medical profession itself must assume leadership. Medicosocial work will fall naturally into the hands of the group of physicians whose place in the new order I have tried to make clear. The headquarters for the organized efforts of this group will be the district health center to which health visitors will be attached as skirmishers, investigators, propagandists, and aids.

Question.—How soon will the changes in medical practice that you predict take place?

Answer.—The first contingent of the new order has already arrived; its members are establishing themselves in various parts of the country as the medical officers of health centers, health clinics, and industrial groups.

Question.—And are these men fully qualified to conserve health by all possible means?

Answer.—Unfortunately they are not; but what the newcomers lack in special training, they make up to some extent in intelligence, energy, and enthusiasm. This first regiment is a regiment of volunteers, of the finest moral quality, but self-trained, and compelled to advance into unknown territory, laboriously feeling its way. The future army will consist of trained regulars whose important tasks in human conservation will be mapped out for them in advance and whose education, skilled leadership, and perfect organization will insure their success.

Question.—I am disposed to accept your prophesy, but what will happen if we should both be mistaken and the changes which you foretell do not materialize?

Answer.—In that case medicine will go forward in knowledge, but backward in usefulness. It will develop intensively as science, but not extensively as practice. We shall witness the further refinement of diagnosis and of specialized treatment, the intrenchment of scientific medicine in citadels of research and learning, but the great mass of the people will gather outside of the walls, the easy prey of charlatans. The leadership of the world, which is the goal of American ambition, will be achieved; strangely and unexpectedly, however, it will be a dual leadership—a leadership in scientific medicine, and in quackery. Is it conceivable that the practical genius of America will tolerate such a paradox?

SOCIAL SERVICE AMONG CHILDREN

By A. LEVINSON, Chicago

PRACTICALLY every social worker comes in contact with problems that concern children. Not every worker, however, realizes the importance of this particular branch of social service and the special problems connected with it. The child is a social problem from the day of its creation to the day it enters adolescence, at which stage it becomes a member of the adult family, when it presents again problems of a social nature, although different from those of its childhood days.

WHAT DOES CIVILIZATION DO TO THE CHILD?

The child is to be considered as a mere potentiality. What it becomes is governed by its natural bent, plus the multiple influences of its environment.

The child is dependent upon society for its food, for its health, for its definitions, and is in no way responsible for conditions that make or mar its development.

Given a normal mental equipment and a satisfactory physiological background, free play and careful guidance will bring out all the latent possibilities of the child. On the full discharge of our duty in child nurture depend the hopes of the future.

Before it is born the child is a eugenic problem. The problem then consists of how to help the mother during the creation of the child, how to prepare the world for the appearance of the child, and how to prepare the child for the world. Undoubtedly many children would be better off if they were not born, and the world would be better off without them. It is not however, for us to judge. All we can do is to make the world more pleasant for the future child and make the child more useful to the world.

During its infancy the child presents problems closely connected with its social status. A baby needs food, care, and love. Nature usually provides food for the baby during the first few months of its existence in the form of breast milk. Some mothers, however, are either unable or unwilling to utilize Nature's gift. There is the rich mother who does not care to nurse her child because it interferes with her social duties and there is the poor mother who cannot nurse her baby because she has to go to work in order to supply the necessities of the child.

Care is very essential to the child. Not every mother, however, is able to care for her baby. Nature does not select the fittest as mothers, nor the strongest as fathers. There is the very rich mother who does not want to bother with the child, when she can get her maid to "care" for it. There is the poor mother who by force of circumstances has to leave her child with a neighbor in order to help carry the burden of the family. There is also the mother who is financially able and mentally willing to take care of her child, but does not know how. There is the mother who is willing to get information but does not know where to get it, and there is the mother who is prevented from getting information by well meaning but badly instructed neighbors.

The problem of what to do with the infant who is nursed by a hysterical or maniacal mother, is not easily solved. Occasionally one feels that under no consideration should the child be deprived of breast milk, as long as the mother has a sufficient supply of it. On the other hand, it wears the mother out, and at times one wonders if it is at all safe to entrust a hysterical mother, who often becomes maniacal, with the nursing of her baby. In a large pediatric practice one often comes across a mother who sits home all day, brooding over the health of her child, pulling it from all sides, waking up the child when it is asleep for fear it might faint; trying to put the child to sleep when it is awake; putting a nipple into its mouth every few minutes; and, on top of it all, nursing it at very frequent intervals. In such a case the question to be decided is whether it is best for the mother and for the baby to continue with the breast feeding régime or whether it would not be to the interest of the child and the mother to put the baby on artificial feeding. In such a case the problem becomes still more complicated in relation to the general interest of the child, and the question arises as to whether it is not advisable to remove the child from the mother altogether.

The Traditional Background

Race and nationality are great factors in doing social service work among children. The colored mother cannot be expected to learn the habits of the white mother. The Polish mother cannot adopt American habits in one day or one month. Racial habits are too deeply embedded in the woman and one should not try to get her away

from them. As a rule, they are not harmful; usually they are useful when modified to fit conditions in this country.

Many children become a distinct social problem because of sickness or death of one or both of its parents. It is not a question of finding a boarding place for the child, but of finding a home for it. A home for a child is no easy matter to provide. A mother builds a home by the sweat of her brow. A mother is able to make a home from a mere tent. A home without a mother, however, is an anomaly and is hard to find. Not every institution becomes a home, and not every woman who loves to play with children can take the place of a mother. Children who have been so unfortunate as to be robbed of mother's care, either through sickness or death, present one of the most acute problems of modern sociology. It is strange that in this era of the child, of infant welfare, of child study, so little attention has been paid to the question as to what to do with children who have no mother's care.

A hospital for children is another social problem. In practically every city in this country we have now one or more hospitals for children. The question, however, arises as to whether it is best to place a child in a hospital or to keep it in the home—is a sick child better off at home with the mother's attention or should he be sent to a hospital where nurses could take care of him?

Contact and Contagion

The question of contagious diseases is a burning one. Quarantine is a hardship on the parents, on the neighbors, and on the milk man. On the other hand, a child may be sent to a hospital for contagious diseases with one disease and there contract another, and it so happens that a child coming into a contagious hospital with measles will get scarlet fever, mumps, chicken-pox, and, in case of a girl, even vaginitis. The physician, nurse, or social worker has to gauge the distance, has to weigh and measure the situation, and has to decide in each particular instance whether home treatment or hospital treatment is indicated.

Persuading a mother to send the child to a hospital is often no easy matter. Many mothers, especially those of foreign birth, are afraid of a hospital. Tact needs to be used in explaining to the mother, as at all times one must take the mother's feelings in the matter into consideration.

The sick child's attitude is a problem that should concern social workers. Bringing toys to a sick child is not all that is necessary. The child requires sympathy during illness, and yet must not be spoiled. He must see that interest is taken in his welfare, yet must not be permitted to feel the worries that befall those nearest him. These problems require a knowledge of child psychology.

The convalescent child is an important subject. The convalescent child requires rest of body and mind, graduated exercise and play. It is up to the social worker to study the social conditions of the family before a child is sent home from a hospital, or the future life of the child may be jeopardized.

Social service among tuberculous children, especially those who manifest no active symptoms, is a subject that should be studied with great interest by those who are interested in the social phases of medical problems. The social worker can do more to prevent tuberculosis in families where there is one or more open cases than the physician or the nurse.

Children affected with syphilis, whether congenital or acquired, are a social problem. Unless actively treated sooner or later they develop symptoms of the disease. As a rule, however, the disease is not recognized early and, when recognized the children are either blind or deaf, or present symptoms of juvenile paresis.

The epileptic child, whether the epilepsy is due to syphilis, to trauma, or to an unknown cause, is a social problem. We have not enough epileptic colonies in this country and those in existence are not always of the very highest order. The social worker is often called upon to decide which case belongs in an institution and which one can or should stay home.

Problem of the Sub-Normal

The mentally defective child is very commonly encountered. The question is how to recognize a mentally defective child and, when recognized, what to do with it. A few standard questions should not put a child into the bright or defective class. One child may be mechanically inclined and thus able to arrange a series of blocks. Another child, as bright or brighter than the first, may not be able to arrange the blocks because of lack of mechanical ability. A standard devised for French children may not be adapted to American children, even though the questions have been translated into English. A child's mentality must be the subject of thorough study. The child must be observed for a long period before it is classed as mentally defective. The question of what to do with children who are mentally defective is one that carries with it a great responsibility. Not every mental defect belongs in an institution, where mentality may suffer still more. On the other hand, many sub-normal children who roam the streets would be much better off in an institution than at home. The proper care of such

cases would result in fewer criminals and fewer crimes. The incurable child requires love and interest on the part of the world, and the social worker may become the connecting link between the patient and the world.

The child presents a social problem during adolescence, the stage when the child suddenly feels a stream of life in him, when he is trying to find an outlet for his energy. The worker who deals with adolescent children must know the physiology and pathology of adolescence and must allow for it accordingly.

The child's nervous system is extremely unstable. The child's habits are not fixed. The good child may not always remain good, and the bad child may still change his ways.

In addition to a knowledge of child psychology, one who does the social service work among children should know a great deal about child physiology. Even a knowledge of the child does not suffice. No child can be separated from his parents. If one wants to study a particular child he must take into consideration the mother of the child, the father of the child, the grandparents, and even the neighbors. While the child is an individual being, it reacts the surroundings by imitation—a characteristic inherent in all children.

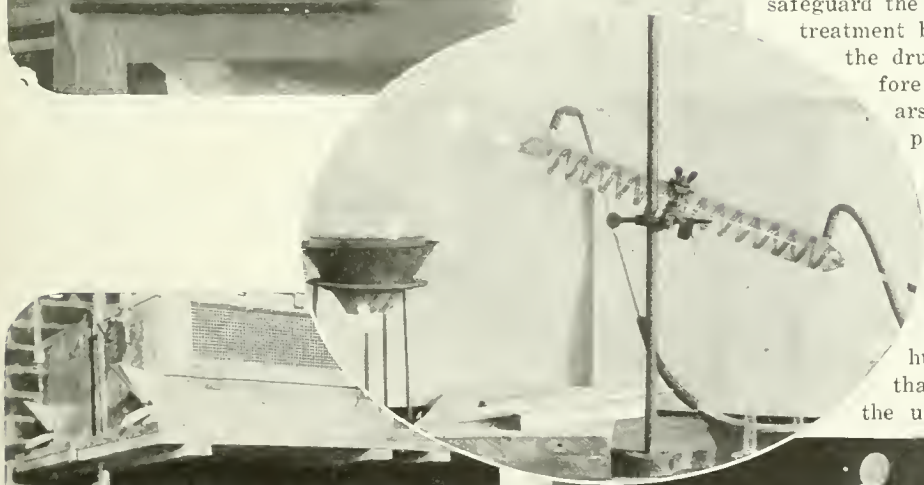
Finally, one who desires to do social work among children must love children. No efficient work can be done in any line without love for the work. This, however, is doubly true of social service work among children.

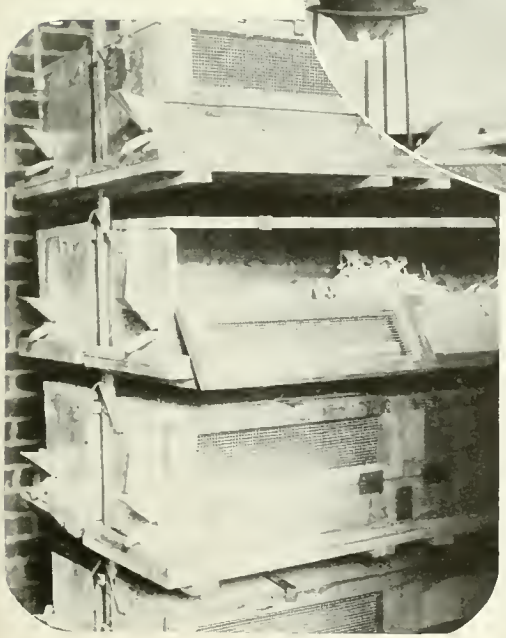
TESTING DRUGS SAFEGUARDS LIVES

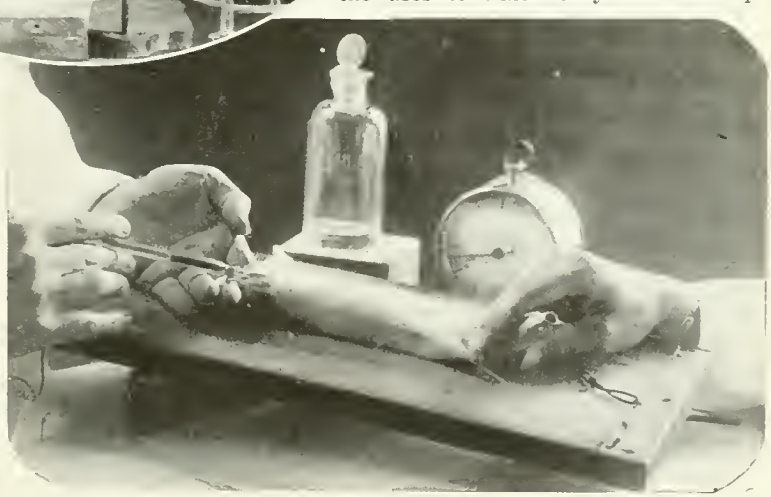
The appropriation of more than $4,000,000 made recently for fighting venereal diseases has given the campaign a great impetus. A great part of this amount will be used for publicity purposes, as one of the most necessary factors in gaining control of these plagues is the dissemination of information on the subject.

Already publicity is resulting in thousands of people afflicted doing the rational thing—learning all they can about such diseases, and seeking help from clinics.

In addition to publicity, the United States Public Health Service is taking every precaution to safeguard the lives of the people who apply for treatment by making the most rigid tests of the drugs used in effecting a cure. Before a manufacturer of salvarsan or arsephenamine is permitted to put his product on the market, experts of the Public Health Service inject specimens into white rats to make sure that it is safe to administer to human beings. An hour before the test is made, the water used in dissolving the drugs is freshly distilled, and everything humanly possible is done to insure that the drugs will properly subserve the uses to which they are to be put.







THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

LEWIS J. POLLOCK, M.D., *Chicago*
Neurology, Psychiatry and Psychology

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

JOSEPH C. BOCK, C.E., Ph.D., *Milwaukee*
Physiological Chemistry

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

RESPIRATORY TRACT INFECTIONS

WINTERNITZ, Smith and Robinson[1] discuss an unrecognized pathway for bacterial invasion of the respiratory tract. "When a preliminary injury has destroyed the efficiency of the protective mechanism in the upper respiratory tract, it is easy to locate the portal of entry and to follow the course of microörganisms associated with pneumonia. But we know that inflammation of the lung can occur when no gross lesion of the upper respiratory tract exists. In the latter condition, how do bacteria reach the lung? This is the question we have sought to answer. The results of our experience, briefly stated, indicate that in such cases the rich plexus of lymphatics within the submucosa of the trachea supplies the requisite pathway."

By very careful technical procedures these authors studied the lymphatics of the submucosa of the trachea and bronchi and review some of the experimental work on the production of pneumonia on the basis of their discoveries. They conclude that the submucosa of the trachea contains a rich plexus of lymphatics prominent everywhere and devoid of valves. This plexus forms anastomoses with other plexuses in the bronchi and the phenomenon occurs throughout the region of the cartilage bearing bronchi. Drainage occurs to the lymph glands of the peribronchial lymphatics, but continuity of the lymphatic system in the tracheal and bronchial submucosae is demonstrable. The work of Blake and Cecil, producing pneumonia by introducing pneumococci into the lumen of the trachea by needle puncture through the skin, causes pneumonia, according to these authors, by way of the lymphatics to the lung. But, though this lymphatic system provides a pathway for infection, it also serves as a protective mechanism by diverting to the protecting regional lymph glands.

Bloomfield[2] continues his study on the fate of influenza bacilli introduced into the upper air passages. Normal human beings were experimented on, material from an active influenza culture being deposited on the tongue, nasal septum, nasopharynx, or tonsil crypt. Cultures were made at various intervals from the inoculated site. The site of inoculation was also watched for signs of reaction. The result substantiated the work of previous investigators and showed: (1) Influenza bacilli disappeared from the upper air passages within one or two days and in no case was a carrier state produced. (2) No local or general pathological process resulted. (3) In five cases the influenza bacilli isolated later than twenty-

1. Winternitz, M. C.; Smith, G. H., and Robinson, E. S.: An Unrecognized Pathway for Bacterial Invasion of the Respiratory Tract, Bull. Johns Hopkins Hosp., 1920, xxxi, 63.

2. Bloomfield, Arthur L.: III. The Fate of Influenza Bacilli Introduced Into the Upper Air Passages, Bull. Johns Hopkins Hosp., 1920, xxxi, 85.

four hours after inoculation were shown to be different strains from those introduced. (4) Influenza bacilli were no longer viable after twenty-four hours suspension at 37 C. The two remaining principles in the summary of his work, it seems to us, are of striking importance. (5) The rapid disappearance of influenza from upper air passages is probably due to a combination of an unfavorable environment with the mechanical flushing processes at work in these regions. (6) The question of the persistence of influenza bacilli in normal throats cannot be finally settled until we possess accurate methods of differentiating various strains of hemophilic bacteria. It would be interesting to see these experiments repeated with view to the pathway of infection described by Winternitz. EDITOR.

MAJOR AND MINOR ROENTGENOLOGY

THERE is just as much reason to distinguish between major and minor roentgenology as between major and minor surgery. Many features of Roentgen practice may be considered as major efforts demanding knowledge of x-ray principles and experience in x-ray practice. Such roentgenologic work as pneumoperitoneum—injection of air in the peritoneum,—ventriculography—injection of air or gas in the ventricles of the brain,—utero-aerography—injection of air or oxygen through the uterus,—pyelography, pyeloscopy, and cystography are essentially major operations.

Gastro-intestinal and plain genito-urinary radiography and accessory sinus and skull radiography are borderline functions which may be done quite ordinarily even by technicians but which assume major proportions if done in a manner equally satisfactory to internist, surgeon, and roentgenologist. Stereo-chest technic is not major, but chest interpretation is.

All bone and tooth work is minor roentgenology.

Deep therapy of malignancy is essentially major work, requiring special preparation in study, the experience of clinical application, and the courage of optimistic practice.

No matter how complete the x-ray installation, the results in x-ray exposures, interpretation, and therapy can never be obtained unless a well trained roentgenologist is in charge.

Technicians can produce plates and grind out therapy, but the values to the patient are measured by the supervision of an experienced roentgenologist.

The profession will eventually be forced to recognize the demands of the given case for major or minor Roentgen assistance in diagnosis and therapy. E. H. S.

LOCALIZATION OF BRAIN TUMOR

MANY things combine to promote real progress in the art of healing. The integral parts contributing to such progress are rarely discovered simultaneously, but in a sequence covering many years or even centuries, and before we can mark a milestone in our advance, we need to overcome several fundamental difficulties. Normal anatomy must be known; then the pathological anatomy, the etiology, the realization that the pathological anatomy exists; the means of diagnosing the condition; and the treatment. In some instances it is the treatment which still must be developed; in others, the treatment is further developed than our powers of diagnosis. In the latter category we can list brain tumor. The surgical treatment of brain tumor has been put on a fairly firm footing, provided the patient comes to operation early enough; but except in a few certain types exact diagnosis is still far from being achieved. True, the etiology is absolutely unknown in the great majority of instances, but in the intelligent use of the known therapeutic procedures is especially restricted by the fact that we have limited means of determining where our operative attack should be directed. Dandy, by his work on pneumo-ventriculography, has gone far in helping us in this direction.

To quote from Dandy's[1] recent article—"Tumors situated in the speech area, in the cortex in the region of the motor centers, or in the brain, in the region of the pituitary body, can be fairly accurately localized by means of the resulting signs and symptoms. However a large percentage of tumors—more than half—are situated in the "silent areas" of the brain and give rise to a series of symptoms at times indicating clearly enough a brain tumor, but that is all—a tumor somewhere in the brain. It is this kind of growth against which our knowledge of treatment is of little avail." In his article Dandy describes five cases, each representing entirely different findings and showing the range of usefulness of ventriculography when tumors of the cerebral hemispheres are suspected. In these cases ventriculography was the sole method by which localization was made.

To inject air into the ventricles an opening into the skull must be made, preferably under local anesethesia. A ventricular puncture is then performed and, after a sufficient quantity of cerebrospinal fluid is drained off, air is injected. The conformation of the ventricles will allow a picture of each ventricle to be taken separately. After the first picture is made the patient's head is carefully turned in such a way that the air will pass

1. Dandy: Ventriculography, Surg., Gynec. & Obst., 1920, xxx, No. 4.

out of the ventricle through the interventricular formina, through the third ventricle and over into the opposite lateral ventricle. Then, with the occiput on the plate, the anterior horns can be photographed and by placing the forehead on the plate the posterior and descending horns will be brought out.

In a general way a very small ventricle is presumptive, though, of course, not absolute evidence of a cerebral, as against a cerebeller tumor or a tumor of the brain stem; when there is a difference in the size of the two lateral ventricles, the tumor is usually on the side of the smallest ventricle. Although an operation in itself, ventricular puncture is a small procedure as compared with exploratory craniotomy or a decompression, and the results obtained in localization of the growth not infrequently make the puncture far more than an exploratory craniotomy.

Dandy concludes with the statement that "with experience and care in the use of ventriculography, I believe few tumors will escape accurate localization."

Dandy has given us a new weapon to use in our fight, a weapon which we believe will be extremely valuable if very carefully and judiciously used but, like all sharp edged tools, the method is no plaything.

R. B. B.

A BENZIDIN-POLYCHROME STAIN FOR BLOOD

THIS new blood stain devised by McJunkin[1] has an interest and importance outside of its relationship to his ideas of the nature and origin of the so-called transitional cells of the blood. He claims, and observations with his kind permission of his preparations verify these claims, that the stain not only demonstrates the oxidase granules in the various types of leukocytes which contain these granules, but also shows the cells as they are seen when stained with the usual Wright stain. This is extremely important, as it enables one accustomed to any of the polychrome methylene blue stains to identify easily the various types of leukocytes containing oxidase granules. The study of pathologic blood is made much easier and more certain by this method. Cells of the oxidase series are readily differentiated from the lymphocytic series. Also, the transitional cell, or endothelial leukocyte as McJunkin believes it to be, can be easily identified. This stain should be of much service in the examination of blood preparations, especially since it is easily prepared and used.

1. McJunkin, F. A., M.D., A Benzidin-Polychrome Stain for Blood, Jour. Am. Med. Assn., 1920, lxxiv, 17.

STUDIES IN EXPERIMENTAL DIABETES

DOGS were rendered diabetic by removal of the pancreas and then injected intravenously with unfiltered water extracts of fresh pancreas diluted with 0.9 per cent sodium chlorid solution. The preparation was administered slowly and Kleiner[1] found that it usually resulted in a marked decrease in the blood sugar.

This decrease was not caused by dilution of the blood with the fluid injected, since the hemoglobin of the blood did not change. It was not due to increased elimination of sugar because there was a tendency for the sugar to decrease in the urine. This urinary decrease in sugar is believed to be partly due to a temporary toxic effect on the kidney of the material injected.

This investigation is of importance in throwing light on the possible relationship between the pancreas and diabetes. Evidence of an indirect nature has been accumulating ever since the work of Opie that the internal secretion of the pancreas is the main control of carbohydrate metabolism. This work of Kleiner is of great importance as it is the first carefully controlled series of experiments testing the effect of an extract of pancreatic tissue on both blood sugar and urinary sugar.

The various hypotheses concerning the etiology of diabetes are discussed by Kleiner, and the relationship of this recent investigation of his to each hypothesis is considered. Regardless of what other hypothesis is accepted, the diminution in blood sugar by the intravenous injection of emulsion of pancreas undoubtedly adds another link in the chain of evidence in favor of the internal secretion of the pancreas being the main control in carbohydrate metabolism.

The toxic nature of any preparation of pancreas and the inability to utilize these preparations except by administering them intravenously forbids their use therapeutically at present. Kleiner especially warns that this should not yet be attempted.

The importance of Kleiner's work cannot be over-estimated and it is hoped that it will stimulate further work along this line. It would seem as if the utilization of glucose in the metabolism is through the mechanism of an oxidase. Oxidases are widely distributed in nature. Further investigation might discover an oxidase which can be administered first to animals with experimental diabetes and perhaps finally to individuals with diabetes, which might return to normal their perverted carbohydrate metabolism.

W. T.

1. Kleiner, Israel S.: The Action of Intravenous Injections of Pancreas Emulsions in Experimental Diabetes, Jour. Biol. Chem., November, 1919.

THE WASSERMANN TEST—A CRITICAL REVIEW

By WILLIAM THALHIMER, M.D., Columbia Hospital, Milwaukee, Wis.

KOLMER[1] recently has brought out the point that the technic or method should be designated the Wassermann test, and only the results of this test should be called the Wassermann reaction.

In this review of the Wassermann test there will be given in as untechnical terms as possible an outline of the fundamental principles upon which this test is based, a critical analysis of the changes and development in technic since the original method of Wassermann was published, and the significance of the results obtained by these different technics.

The Value of the Test

One not infrequently hears criticism of the Wassermann test. Most especially it is said that it is an uncertain or irregular laboratory test, and that different laboratories not infrequently disagree in their reports on the same serum. This is true to a certain limited extent. To what degree this is limited will be noted directly. The value of the Wassermann test is, however, best summed up by Vedder: "One is impressed by the fact that the Wassermann reaction must be a test of most surprising merit to have survived all the clumsy technic that has been perpetrated in its name."

The limit of legitimate variation in reports from different laboratories on the same serum is as follows: No matter what modification of the original technic is used, provided the actual technical work is carefully and properly done, there should never be a disagreement about a four plus reaction. With some technics undoubtedly some false positive results occur, but this means that some non-syphilitic sera are reported one or two plus, never stronger. Also, sometimes one, two, or even three plus reactions will be differently reported. Reactions of these strengths are mainly of value in following the treatment of already proved cases of syphilis, so that, whereas this divergence is unfortunate, it can readily be understood when we come to consider the various modifications in technic. Even so, this is not an insuperable difficulty, as the value of the test in controlling the treatment of a case can be fully utilized by the simple expedient of having all the tests done at a single laboratory, making sure that it is a reliable laboratory, in which case all the results will have the same relative significance. It can be stated, in all probability with no fear of contradiction, that if on the same serum one laboratory reports a four plus reaction and another reports a negative, then one laboratory or the other, or both, are doing unreliable work.

We believe that every physician should understand the principles on which the Wassermann test is based, in order that he can properly understand what the Wassermann reactions from the laboratory mean, and how they should be interpreted and applied. Although scarcely two laboratories perform this test exactly alike, if the fundamentals are appreciated on which all of these tests are based, then it is simple enough to evaluate any given test or technic. Also, proper correlation of the results of the tests with the clinical aspect of even a few cases will readily inform the doctor whether the laboratory performing the tests is to be relied on or not. Therefore, at the risk of using valuable space for elementary information, the principles underlying Wassermann test follow:

Principles of the Test

Any material is an *antigen* which, when injected into an animal, causes substances to be formed which react with or against the injected material. These substances which are formed by the animal are *antibodies* and are usually found in the circulating blood, that is, the plasma or serum. Some of these are *immune antibodies*, such as *antitoxin;* some apparently have no immunizing or protective action; at least, we have not yet discovered the protective properties of some of these antibodies. Most antibodies show a marked specificity, that is, they react only with or against an antigen which has excited their production, or react stronger with their specific antigen than with other antigens, even though these antigens be closely allied. Thus, typhoid agglutinating antibodies may slightly agglutinate the closely related paratyphoid organisms, but never do this as markedly as they agglutinate typhoid bacilli.

Some antibodies act directly on the antigen; others act only in the presence of a substance called complement, which is present in varying amounts in the blood of practically all species of animals. Examples of the direct acting antibodies are agglutinins and antitoxins. Examples of antibodies which act only in presence of complement are bactericidal antibodies (which kill bacteria) and the antibodies which give the

1. Kolmer: Am. Jour. of Syph., 1919 and 1920.

specific reaction in the Wassermann test. Experiments seem to show that antibodies which act only in the presence of complement act by attaching, or fixing, the complement to the antigen.

Complement is thermolabile, that is, it is destroyed by heating to 56° C. for half an hour. It also deteriorates in a few hours at ordinary room temperature. Complement fixing antibodies are thermostabile, that is, they resist 56° C. for half an hour.

From this it is easy to see that if syphilitic antigen is brought together with syphilitic antibodies and with complement, then the syphilitic antibodies will attach, or fix, the complement to the syphilitic antigen. That is to say, if a patient's serum fixed complement to syphilitic antigen, then the serum contains syphilitic antibodies. This means that these syphilitic antibodies have developed in the patient's blood in response to syphilitic antigen—*spirochete pallida*, the cause of syphilis—and therefore the patient has, or has had, syphilis. This reaction is called complement fixation, and the Wassermann test, which utilizes this reaction, is a complement fixation test.

Complement Fixation Determined

We must now show how we are able to determine whether complement fixation occurs. This is done by bringing together syphilitic antigen, patient's serum, and complement under conditions favorable for complement fixation. This mixture is then tested for free complement. If the complement is not fixed to the syphilitic antigen, then it is free and can be attached by appropriate antibodies to still another antigen. If antibodies to sheep red blood cells are brought together with sheep red blood cells and with complement at 37° C. a solution of the red blood cells occurs. This is called hemolysis, and can readily be detected in a test tube. Therefore, if to the original mixture of syphilitic antigen, patient's serum, and complement we add sheep red blood cells and hemolytic antibodies for these cells, then, if no hemolysis occurs, all the complement has been fixed originally, which indicates that the patient's serum contains syphilitic antibodies, and that the patient has or has had syphilis. This is a positive Wassermann reaction. If, however, the sheep cells are hemolyzed, then the complement was not fixed in the original mixture, no syphilitic antibodies were present; patient is not a syphilitic, and the Wassermann is negative.

This reaction is sharp and clear cut. Furthermore, the different reagents act according to their quantitative relations to one another. A given amount of hemolytic antibody will dissolve only a given amount of red blood cells in the presence of a certain amount of complement. The fixation of complement by syphilitic antibody is also a quantitative reaction. But the most important fact to realize is that complement fixation by any one combination is not a final, complete, and unbreakable union. If a second antigen-antibody combination is added, such as red cells and hemolytic antibody, with a large amount of hemolytic antibody present, its action may be so strong as to take some fixed complement, and join it to the red cells and convert a positive reaction into a negative one. Because of these facts, it is absolutely necessary that definite suitable amounts of all reagents be used.

Since the Wassermann test is a quantitative reaction, it is necessary to discuss the quantities of the various ingredients used. In the original test described by Wassermann the total volume after everything was added was 5 cc. Most Wassermanns are now done in one-half amounts, the total volume being 2.5 cc. In some laboratories one-tenth amounts are used so as to save materials when large numbers of tests are done. The test with one-half amounts seems the most satisfactory. Ottenberg has suggested that for sake of uniformity and simplicity in reporting Wassermann technic, that all figures be given to correspond to the original 5 cc. Wassermann. Many investigators have done this, and this will be done in the present discussion.

Quantitative Relations

The most important material to be determined and used quantitatively is complement. If an excess of complement is used, more than can be fixed under the conditions of the test, some will remain free, give hemolysis, and therefore false negative reactions. If too little complement is used, the opposite will occur and false positive results will be obtained.

There are different methods to determine the amount of complement to use, the one generally used at present seems undoubtedly the best and the most logical. The best source of complement is guinea pig serum. The complement of this serum is greater in amount and more active against sheep red blood cells than that of any of the other laboratory animals; but the amount and activity of complement varies in individual guinea pigs, so it is universally agreed that it is best to use the pooled serum from a number of guinea pigs. The guinea pig blood is allowed to clot, then centrifuged and the serum pipetted off, care being taken not to carry over any red blood cells. This is usually diluted with nine parts of normal saline solution, making a one to ten solution. It is important to use chemically pure so-

dium chlorid for making all the salt solution used in the Wassermann, as otherwise impurities in the salt will cause unusual things to occur to the sheep red cells, such as agglutination, or abnormal resistance to hemolysis.

The complement is standardized by determining the minimum amount which, with a sufficient amount of sheep red cell hemolytic antibody—usually spoken of as sheep red blood cell amboceptor—will hemolyze the amount of sheep cells used in the test. This is called the unit of complement, or complement unit. One cc. of a 5 per cent cell suspension in normal saline is the amount used in the original Wassermann. The sheep blood is collected in sodium citrate solution or defibrinated, washed five times in normal saline, and then packed by a high power centrifuge run for a given length of time, such as seven minutes. This gives a fairly uniform concentration of the red blood cells.

There are a number of ways of doing these standardization, or preliminary, tests. Regardless of the method used, everyone is agreed that these preliminary standardization titrations are the most important step in the entire test. If these are properly done, setting up the tests proper is merely a question of accurate pipetting. When the preliminary tests give clear-cut results, then no trouble is encountered later from poor, peculiar, or inactive complement.

The principle on which the unit of complement is determined is as follows: In a series of test tubes an amount of sheep red blood cell amboceptor is added just sufficient to hemolyze 1 cc. of a 5 per cent suspension of sheep red blood cells together with this stated amount of the cell suspension. To the different tubes graded amounts of complement are added: thus, 1 cc., 0.8 cc., 0.5 cc., 0.4 cc., and 0.2 cc. of a 1-10 dilution of guinea pig serum. The total volume in each tube is made up to 3 cc. and then incubated in a water bath at 37° C. for about fifteen minutes. Practically the entire amount of hemolysis which is going to occur will have taken place in that time. The smallest amount of complement which gives complete hemolysis is the "unit of complement." After having determined the complement unit, then in another series of tubes are placed the unit of complement, 1 cc. of cell emulsion, and a varying amount of sheep red blood cell amboceptor. The minimum amount of amboceptor causing complete hemolysis is the amboceptor unit. The usual source of sheep red blood cell amboceptor is the serum of a rabbit which has been repeatedly injected with sheep red blood cells. In this way hemolytic antibodies are developed in the rabbit's blood.

The original antigen used by Wassermann was an extract in normal saline of the liver of syphilitic fetus liver. This deteriorates quickly and was soon supplanted by an extract of this material in absolute (ethyl) alcohol. Strong alcohol would hemolyze the red blood cells, and so the alcoholic antigen is diluted in normal saline in the proportion of 1 to 10 or 1 to 20. It has also been found that a similar alcoholic extract of normal human, beef, or guinea pig heart is just as satisfactory an antigen. Because of this there has been considerable criticism in the past of the non-specificity of the Wassermann reaction, since these non-specific, or non-syphilitic, antigens can be used. It is not necessary at this time to go into this point any further than to state that the results of the Wassermann test have established it absolutely as a diagnostic test for syphilis. The acetone insoluble fraction antigen of Noguchi is an alcoholic antigen made from the portion of the original alcoholic extract not solube in acetone.

The amount of antigen used in the original method was chosen more or less empirically. At present there are ways of accurately measuring the amount to be used. This will be discussed later. The patient's serum has to be heated to 56° C. in a water bath for one-half hour to "inactivate" it; that is, to remove whatever complement may be present, for complement is destroyed by exposure to this temperature for this length of time. If we are working with a measured amount of guinea pig complement, we must be certain not to introduce other complement and so destroy the quantitative relations of the ingredients of the test. There are also other reasons for inactivating the patient's serum, which can be discussed to better advantage later. It has been found that 0.2 cc. of a syphilitic patient's serum will give complete fixation of the complement used under the conditions of test.

With this outline we can now proceed to put the materials together and perform the test. The antigen, patient's serum, and guinea pig complement are placed in a test tube and the total amount made up to 3 cc. with normal saline. These are allowed to stand for a sufficient time under suitable conditions, so that the complement will be fixed to the antigen if syphilitic antibodies are present. At the end of this time we determine whether this has occurred by next adding the sheep red blood cells and their hemolytic amboceptor. If fixation of complement has occurred, then no complement is free and no hemolysis occurs. If no fixation has taken place, then we have hemolysis.

The above is essentially the way in which the original Wassermann is done; the principles un-

derlying it and the fundamental technic are those on which all modifications are based. The technic and methods have been steadily improved, so the test of today is considerably more reliable than it was when first used. Before proceeding to the final analysis of these, more discussion of some other factors is necessary.

There is such a thing as non-specific fixation of complement in the test. This may occur on account of some quality of the patient's serum or antigen, or because of a combination of these two. This is called "anticomplementary" action and the tests must be controlled so that this anticomplementary action will be discovered if present. It can often be eliminated. A control tube is always set up containing only patient's serum and complement, to which, after the proper period, amboceptor and cells are added. Complete hemolysis should occur; if it does not, then the patient's serum is anticomplementary and lack of hemolysis in the regular test may mean merely the non-specific anticomplementary action of the serum. Serum tends to become anticomplementary which has stood for several days, especially if in still contact with the blood clot and not inactivated—one-half hour at 56° C.—or when some hemolysis of the patient's blood has accidentally occurred and tinged the serum red. This anticomplementary reaction is at times removed by inactivating again just before performing the test. Therefore all sera should be inactivated immediately before setting up the test. Sometimes a specimen of antigen is anticomplementary by itself. This is easily controlled by using an extra tube with every set of tests, in which is put double the dose of antigen used along with complement and, later, the *hemolytic system*—this is the name for the combination of amboceptor and red cells. If double the dose of antigen used does not show anticomplementary power, then the single dose will not be anticomplementary.

Every antigen must be standardized and the unit of antigen is also standardized. With a known strongly positive syphilitic serum graded amounts of antigen (diluted in saline) are tested out with the regular complete Wassermann test beginning with 0.05 cc. and going up to about 1.5 cc. The smallest amount of antigen which gives complete fixation is the unit of antigen. After this has been estimated, the antigen dose used in the routine work should be at least two units. This two unit dose must not be more than one-fourth the anticomplementary dose to be sure of no non-specific fixation. Since the alcohol in which the antigen of today is dissolved may have an hemolytic effect on the red blood cells, one must be sure to exclude this possibility. This is done by determining the lytic action of the antigen on the cells by testing for this in a series of test tubes. Any potent alcoholic antigen, it will be found, will not hemolyze the cells in many times the routine test dose.

Alcoholic antigens are prepared for use in a very special manner. They are diluted in normal saline to a 1-10 or 1-20 dilution. The alcoholic antigen is first placed in a dry glass container and the required amount of salt solution is added extremely slowly while the mixture is continuously agitated. This results in a milky emulsion and is very important for good results. If the saline is added too quickly the emulsion does not form so well. The antigen must always be freshly diluted on the day of the tests.

It has been previously stated that a definite amount of complement must be used. This needs further elaboration. It has been found that two complement units will be completely fixed in the test by a positive syphilitic serum. Thus if 0.5 cc. of 1-10 dilution of guinea pig serum is the complement unit, then 1 cc. of this dilution is the amount added; that is, two units. As we have described, this complement titration is done by water bath incubation at 37° C. for fifteen to twenty minutes. Besredka, however, has shown that the true unit of complement can only be decided by much longer incubation; that is, if 0.5 cc. is the complement unit after twenty minutes' incubation, after several hours in the water bath it will be found to be about 0.25 or 0.3 cc. Some workers make this determination after twenty minutes' incubation, some by Besredka's method. Kaliski[2] uses the Besredka method and feels sure that thereby he never has an excess of complement and avoids false negative results. The twenty-minute method is the one generally used and is undoubtedly satisfactory.

The amount of hemolytic amboceptor in general use is also two units (of amboceptor). Here we come to a much discussed phase of the Wassermann technic. The reason for this is that, unfortunately, the majority of human sera contain natural hemolosins for sheep red blood cells. Two-tenths of a cubic centimeter of patient's serum, the amount usually used, may contain as much as two complete hemolytic units. As this is not destroyed at 56° C., it would be present in the test. If this is not taken into account, the addition of the routine two amboceptor units would give a great excess of this and would convert a weakly positive test, where the complement is weakly fixed, into a negative test. This excess of amboceptor has practically no effect in a strongly positive reaction; but in treated cases of

2. Kaliski: Quoted by Ottenberg.

syphilis this error could easily occur. This brings us to a consideration of how to take this natural hemolysin into consideration, and how to eliminate this possible error The ideal way would be to use an hemolytic system based on red blood cells of another animal than the sheep for which human serum has no natural hemolysin. This ideal cannot be reached, since a variable percentage of human sera has hemolysins for the red blood cells of all of the usually available animals. Human cells are the best from this point of view, but there are other disadvantages in human red cell systems.

A number of methods are in use employing the human hemolytic system. That called the Hecht-Gradwohl modification is probably best known. The limitations of this have been carefully tested out by Kolmer.[1] Kaliski's[2] method appeals to us as logically the best means of dealing with natural sheep red cell hemolysis. After the preliminary incubation of the mixture of serum, antigen, and complement, instead of adding amboceptor and cells at the same time, he first adds the cells, and then incubates for fifteen to twenty minutes. There is always in every Wassermann test a control tube containing only patient's serum and complement—no antigen—to rule out an anticomplementary action of the patient's serum. This tube serves Kaliski as an index of the amount of amboceptor to add. If complete hemolysis occurs in this tube, then not only is no anticomplementary action present, but at least two natural hemolytic units are present and no more amboceptor need be added to the other tubes of the test. If 50 per cent hemolysis occurs, then only one amboceptor unit is present and one more must be added and the test returned to the water bath until the rear tube shows complete hemolysis, which will require another fifteen to twenty minutes. In this way there is never an excess of amboceptor present. This error because of natural hemolysis is apt to occur also if sensitized cells are added, that is, cells sensitized by incubating them in bulk with sheep cell amboceptor. Here there is the same addition of the two amboceptor units, regardless of the amount of natural hemolosin present in the patient's serum.

The next important factor to consider is the temperature and time of the first incubation, that is, of patient's serum, antigen, and complement. In the original Wassermann this was for one hour in a thermostat at 37.6° C. This is the same as one-half hour in a water bottle at same temperature, for in a water bath the tubes become warm more quickly than in a thermostat. It has been found by numerous observers that this is not long enough for maximum fixation to take place; but it has also been found that longer incubation at 37.6° C. causes deterioration of complement which is incompatible with the test and gives false positive results. Therefore it has been observed that longer incubation at much lower temperature allows better fixation to occur and no deterioration of complement for a number of hours. The best temperature is 8° to 12° C. (ice box temperature). Four to six hours in the ice box gives the best results, and longer than this will give weakly positive results in negative sera, undoubtedly because of deterioration of complement (Owen and Martin, Ottenberg). Kaliski uses first one-half hour water bath incubation at 37.6° C. and then two to four hours in ice box. His results are undoubtedly reliable. More and more workers have discarded the water bath incubation and are only using incubation in the ice box. There is no doubt but that this is the method of choice and an appreciable number of weakly positive sera will be demonstrated by this method that will be missed by water bath incubation alone. There is an excellent recent article on this subject by Owen and Martin.[3]

The question of cholesterinized alcoholic antigen must be discussed. When this was first introduced it was found that a much larger percentage of positive results was obtained with it than with other antigens. This was thought an improvement in the Wassermann technic. It has since been learned that cholesterinized antigen has the defect of what may be called being too sensitive. It undoubtedly gives false positive results and it is definitely more serious to brand a patient as a syphilitic who is not than to miss an occasional positive case, deplorable as the latter may be. Ice box incubation with plain alcoholic antigen gives within 1 or 2 per cent as many positive reactions in known syphilitics cases as with cholesterin antigen. It must be remembered that up to now no technic has yielded 100 per cent positives in *tabes dorsalis* and general paresis. In questionable or known negative cases there are from 3 to 30 per cent more positives with cholesterinized antigen than with any other. It must be concluded that cholesterinized antigen gives false positive reactions and the consensus of opinion is that results from cholesterinized antigen alone are unreliable and should always be checked with other antigens.

Wassermann reactions are usually reported as follows: negative, one plus (+), two plus (++), three plus (+++), and four plus (++++). Four plus is the strongest positive result obtainable and means complete fixation and, in the absence of febrile complications or diseases, means active or latent syphilis.

3. Owen and Martin: Jour. of Laboratory and Clin. Med., January, 1920.

Three plus also indicates syphilis. Reactions less strong than this only have significance in untreated cases if they fit in with the clinical picture. One and two plus reactions are, however, of great value in guiding the treatment of a case.

Weakly positive reactions on the spinal fluid have more significance than the same degree on the blood. Some cases of syphilis of the central nervous system give positive reactions only on the spinal fluid and not on the blood.

We believe that all clinicians should have a certain amount of knowledge of the technic of the Wassermann reaction, so as properly to understand results and be able to interpret them and apply them clinically. By this knowledge the clinician is also able to decide whether the results are reliable or not. He should insist on Wassermanns done with ice box incubation and with at least two alcoholic antigens. Cholesterinized antigen results alone are not reliable and, where reports are given separately as results from different antigens, the clinician must interpret their significance, based on his knowledge of the technic of the test and his knowledge of the patient.

Modifications of the Wassermann technic using a human hemolytic system, such as the Hecht-Gradwohl, are capable of giving very delicate results, at any rate in a certain percentage of cases; however, one must make sure that they are done by a very careful expert worker.

Results Vary with Technic

A collection from the literature of results of Wassermann tests performed according to different technics shows discrepancies which occur in the results with different antigens and with different incubation temperatures.

Jacobstahl, in 1900, in 200 tests, found 2 per cent more positives with ice box incubation of one and one-half hours at 4° C. than at 37° C.

Guggenheimer tested 623 sera with incubation at 0° C. and 37.5° C. for one and one-fourth hours. Twenty sera showed a marked difference; twelve were positive only at 0°, eight only at 37.5°. The cases producing these sera were clearly luetic. These results are only slightly in favor of ice box incubation, but attention must be called to the comparatively short incubation period.

McNeil reports testing 466 cases at both incubator temperature and at 8° to 12° C., the latter for four hours. He obtained 10.3 per cent more positives with ice box temperatures than with incubation temperature. It is unfortunate that he did not give histories of his cases.

Coca and L'Esperence in testing 828 sera with incubation at 7° C. and at 37.5° C. found 203 positive by both methods; 28 were positive only at ice box temperature; and 13 positive only at incubator temperature. These results are again slightly in favor of incubation at a low temperature.

The results of Smith and MacNeal, especially interesting, are tabulated as follows:

Clinical Condition	Cholesterinized Antigen Incubator Fixation	Plain Antigen Ice-Box Fixation	Plain Antigen Incubator Fixation
110 cases of known syphilis	58% positive	75% positive	32.2% positive
43 cases probably syphilitic	65.9% positive	5% positive	36.3% positive
49 cases probably not syphilitic	40% positive	77% positive	1.6% positive
265 non-syphilitic cases	100% negative	100% negative	100% negative

These results, as noted by Owen and Martin, are difficult to reconcile. They indicate, however, that plain antigen with ice box incubation give a higher percentage of results in syphilitic and probably syphilitic cases than cholesterinized antigen. In probably non-syphilitic cases the very high percentage of positives with cholesterinized antigen seems to indicate non-specific results, which is the criticism that is made of this antigen.

Ottenberg states that plain antigen with ice box fixation gives the most delicate and accurate results. He finds that cholesterinized antigen cannot be used with ice box fixation.

Owen and Martin[3] in a very comprehensive article, from which we have taken much of the above data, give very interesting results. They found in five hundred known syphilitic cases 70.6 per cent positive reactions with plain antigen and four-hour ice box fixation, and 76.6 positives with cholesterinized antigen. This is a 6 per cent advantage in favor of cholesterinized antigen.

Five hundred cases clinically negative gave positive reactions with cholesterinized antigen in 3.8 per cent and with plain antigen and ice box fixation in one case, or .02 per cent. This case they class as a false positive. This false positive error can be seen to be much less than with cholesterinized antigen.

In 113 cases classed as doubtfully syphilitic the comparative results are again confusing. With cholesterinized antigen there were 32.8 per cent more sera positive than with plain antigen and ice box fixation. They conclude, however, that a positive reaction only with cholesterinized antigen in a case with a doubtful syphilitic history is in-

sufficient grounds for a positive diagnosis of syphilis.

Berghausen[4] used cholesterinized, alcoholic and acetone insoluble fraction antigens on two thousand sera and reports in detail the results obtained in 220 sera. Fixation was done in all by both water bath at 37° C. and ice box at from 0° to 2° C. He does not consider that his cholesterinized antigen gave false positive results which he states may have been due to his special sample of antigen and to the small amounts used. He utilized the method of Kaliski of allowing for the natural hemolytic amboceptor present in many sera. The percentage of positive results was consistently higher with ice box fixation than with water bath fixation with plain alcoholic antigen, ranging from about 6 per cent to 11 per cent. There were also a few more positive reactions with plain alcoholic antigen with ice box fixation than with cholesterinized antigen and ice box fixation. [It must be remembered that some observers claim that cholesterinized antigen should only be used with water bath fixation.] Berghausen concludes that simple alcoholic antigen with ice box fixation yields satisfactory results, that there is no evidence to show that ice box fixation causes false positive reactions, and that ice box fixation increases the number of positive reactions.

Wile[5] reports a very interesting series of cases. He has apparently discarded entirely, for the time being, all antigens except cholesterinized. He is much impressed by the results in his serological laboratory with the greater sensitiveness of cholesterinized antigen with sixteen hours ice box fixation over the same antigen with water bath fixation. The report is on 459 cases of syphilis in all stages, selected from thousands of tests. His results are carefully analyzed and cannot be given in detail. Two sets of figures are important. The ice box test gave 5 per cent more positive reactions in both treated and untreated cases of syphilis, and 50 per cent more in treated cases alone. Wile concludes that the cholesterinized antigen and ice box fixation are valuable modifications which render the Wassermann more sensitive. He claims that positive reactions obtained with this technic are rendered negative by intensive treatment in only a very small percentage of cases. Therefore, he questions the relationship between clinical cure and negative Wassermann reactions. This article is very stimulating and should lead to more careful work along this line. Unfortunately Wile did not compare other antigens with cholesterinized antigen.

Roderick[6] performed Wassermanns in 5,787 cases with cholesterinized antigen and with acetone insoluble antigen. He carefully controlled the antihemolytic tendency of cholesterinized antigen. The results differed in 47 cases—a very small percentage—in which the reaction was positive with the cholesterinized antigen. He was able to trace the history in 39 of these cases; 35 of the traced cases gave a positive history of syphilis. These figures are the best yet found in the literature justifying the cholesterinized antigen. Nevertheless, Roderick warns against using the cholesterinized antigen alone.

Blaivas[7] has reported on one hundred sera examined by the Wassermann technic and the Hecht-Weinberg-Gradwohl modification. Unfortunately, he does not mention what antigen and what type of fixation were used in the Wassermann technic. In spite of the fact that there were 5 per cent more strongly positive and 9 per cent more borderline positive results with the Hecht-Weinberg-Gradwohl technic than with the Wassermann, Blaivas concludes that the former method should never be performed alone but should always be controlled by the Wassermann. Seventeen of the one hundred sera were not suitable for the Hect-Weinberg-Gradwohl method.

To summarize the citations given it seems well established that the use of cholesterinized antigen in the Wassermann technic is unreliable in that it gives false positive results. Plain alcoholic antigen or the acetone insoluble fraction antigen of Noguchi with fixation for from four to six hours in the ice box at 4° to 8° C. is practically as sensitive as cholesterinized antigen and can be relied on *not* to give false positive results in non-syphilitic cases.

Prevalence of Syphilis

The following statistics from Spohr[8] give the percentage of positive Wassermann reactions found in several different groups of individuals. The most interesting and at the same time the most appalling are those given by Vedder[9] of the United States Medical Corps for recruits, cadets, and enlisted men in the United States Army. These results were obtained from men, presumably healthy, admitted to the Army. They serve as a more accurate index of the prevalence of syphilis in America than any other available statistics. Figures showing the prevalence of positive Wassermann reactions in hospitals or dispensary cases are of extreme importance in showing the possible relationship between syphilis and other diseases, but are not a proper index of the percentage of syphilis in the population.

4. Berghausen: Jour. Am. Med. Assn., 1919, lxiii, 996.
5. Wile: Jour. Am. Med. Assn., 1919, lxiii, 1526.
6. Roderick: Am. Jour. of Syph., 1919, lxiii, 1526.
7. Blaivas: Jour. of Laboratory and Clin. Med., January, 1920.
8. Spohr: Ohio State Med. Jour., January, 1920.
9. Vedder: War Department Bulletin No. 8, June, 1915.

Vedder[9] found 16.77 per cent of recruits were syphilitic at the time they entered the service; 16.08 per cent of white enlisted men, and 38 per cent of colored enlisted men were classified as probably syphilitic. Vedder estimates that about 20 per cent of the young adult male population of the class from which the Army was recruited are infected with syphilis. The technic of the Wasserman test used could not be found in the literature available.

Ecker[10] reports on 9,412 Wassermann tests made at the Serological Laboratory of Cleveland, Ohio. His results were from cases with a suspicious history or obscure symptoms. The figures therefore do not determine the percentage of syphilis in the entire population of Cleveland. The technic of the Wassermann test used is not given. Ecker found 23.71 per cent positive among the males and 24.99 per cent among the females.

The following show the percentage of positives when routine Wassermanns were performed at various children's clinics:

Epstein, at Prague, 33 per cent of 236 new born infants; Blackfan, Nicholson, and White, 2 per cent of 101 patients; Holt, 6 per cent of 178 hospital children; Elliott, of Glasgow, 10 per cent of 130 children; Children's Clinic, at Prague, of 2,533 infants 5.7 per cent were syphilitic; Whitney, from a San Francisco Hospital, 2.9 per cent of 915 children; and Churchill and Austin at the Children's Memorial Hospital, in Chicago, 3.3 per cent of 695 cases. The Wassermann technic used in these tests is not stated in the literature available.

Spohr performed routine Wassermann tests on 1,840 children admitted to the Children's Hospital of Columbus, O. Of these 5.16 per cent were positive, and 4.23 per cent gave weakly positive reactions. In only one case was syphilis acquired after birth. These tests were performed by the Craig Modification, with the use of cholesterinized antigen and human corpuscles. The figures should be interpreted in light of this and are probably higher than plain alcoholic antigen would have given. They are very valuable, nevertheless.

MEDICAL RESEARCH COUNCIL

By Our London Correspondent

THE value of medical research was conclusively proved during the war, and in Great Britain so evident were the results from this form of investigation that the decision has been reached to enlarge the scope of the Medical Research Committee which has done such good work in the past few years. The Medical Research Committee has been transformed into the Medical Research Council with an enlarged sphere of duty and with greatly increased responsibilities. The newly formed Medical Research Council with an enlarged sphere of duty and with greatly increased responsibilities. The newly formed Medical Research Council will perform its functions under the supervision of a Committee of the Privy Council, which will consist of Mr. Balfour, the Lord President of that Body, the Minister for Health, the Secretary for Scotland, and the Chief Secretary for Ireland. Accordingly, the Medical Research Council becomes a permanent sub-committee of the Privy Council, and under its governing body can enter into all contracts, can hold personal property, and dispose of same.

Among the main points of interest to medical men in the constitution of the new body, two are especially significant: (1) the Medical Research Council obtains access without intervention to the Minister directly associated with its work, and (2) the advice of the Royal Society is to be taken in respect of the personnel of the Council. The first Council consists of the existing Medical Research Committee and is constituted as follows: Mr. C. T. Bond, F.R.C.S., consulting surgeon to Leicester Infirmary; Prof. William Bullock, F.R.S., professor of bacteriology in the University of London; Dr. I. R. Elliott, F.R.S., physician to the University College Hospital; Mr. William Graham, M.P.; Viscount Goschen; Dr. Henry Head, F.R.S., Prof. Gowland Hopkins, F.R.S., professor of biochemistry in the University of Cambridge; Sir William Leishman, F.R.S., director of pathology, A.M.S.; Prof. Noel Paton, professor of physiology in the University of Glasgow; and the Hon. E. F. Lindley Wood, M.P. Two of the members of the Council, having seats in either the House of Lords or the House of Commons, will be able to render a first hand account of the Council to Parliament. Three members of the Council will retire at intervals of two years, and appointments to their vacancies or to any other vacancies which may casually arise, are to be made by the supervising Committee of the Privy Council after consultation with the existing body itself and with the President for the time being of the Royal Society.

This recognition of the Royal Society as the body definitely constituted to advise the Government in matters pertaining to science is timely. The Royal Society has been called upon frequently to fulfill a function of this character and its recent work with respect to the food supply during the war is still green in the memory. But among medical men there has developed a feeling lately that the best knowledge of science has not always been at the disposal of Government Departments. However, with regard to the new Medical Research Council this objection should not hold good.

IVY AND SUMAC POISONING

The wide prevalence of certain species of plants belonging to the Rhus or Sumac family, and the fact that absolute immunity to the action of Rhus toxin does not exist, emphasize the importance from a health standpoint of learning the prominent characteristics of these plants, their leaves, fruits, winter buds, and habit of growth so that they may be avoided.

An article on "Ivy and Sumac Poisoning," by E. A. Sweet, Surgeon, United States Public Health Service, and Dr. C. V. Grant, Bureau of Plant Industry, Department of Agriculture, in *Public Health Reports*, February 27, 1920, describes minutely the features of the plants to be feared, the varying degrees of susceptibility to the poison, the means of exposure, the clues to the character of the disturbance, methods of prophylaxis, and the management of cases.

10. Ecker: Am. Jour. of Syph., April, 1919.

HEALTH IN INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

MONOTONY AND FATIGUE IN SHOP AND OFFICE

THE importance of psychological and physiological research in relation to industrial welfare is now recognized by the medical profession. The monotony of certain trades and industries is largely responsible for the ill health and discontent that prevail among the workers in these trades and industries. It is an obvious fact that no machine of metal, however well made, will work properly unless it is kept clean and oiled and is run under suitable conditions generally. In order that it may work efficiently, the human machine requires far more than mere good hygiene and sanitation, essential as these are. That complex machine, the human body and mind, is patently much more delicate and much more sensitive to its environment and consequently stands yet more greatly in need of care and attention if it is to perform its functions to the best effect. It is not enough that it is well oiled and cleaned, that is, is provided with plenty of suitable food and works under healthy conditions.

The psychological and physiological aspect must be considered as well. Fatigue and monotony of labor must be avoided as far as is possible. The worker must perform his daily task in comfort and in circumstances in which sufficient variety exists to dispel or palliate the gloom of monotonous toil. It is only recently, however, that this phase of the matter has been considered. Until comparatively lately little thought has been bestowed on the character of the conditions required for efficient working, and even less on seeing that they were provided in factory, workshop, and office.

It is with the object of studying these conditions, systematically and scientifically, and of securing their observance in practice, that the proposal to found a British National Institute of Psychology and Physiology as applied to industry and commerce has been advanced with the support of prominent leaders of industry and of well known psychologists and physiologists. Among the latter may be mentioned the names of Dr. G. S. Myers of Cambridge, Prof. C. S. Sherrington of Oxford, and Prof. E. H. Starling of London University.

Of the ways proposed to attain this object, one of the chief is the establishment of a well equipped laboratory or laboratories for research into various occupations in order to determine the conditions necessary to get maximum output with minimum fatigue and discomfort to the worker, such as the elimination of unnecessary movements, and to study the causes of mental and muscular fatigue and the methods for reducing it. Tests would be made in the laboratory for the purpose of establishing standards by which workers could be selected for work for which they were best fitted, mentally and physically. These standards would enable parents and after-care committees to be advised as to the best vocations for children, and should thus eliminate much waste of time at the outset and prevent a good deal of the discontent which arises when a worker finds out too late that an unsuitable occupation has been chosen. The facts established by research would be collected and classified, and from time to time published in such form as to bring out their practical value.

Another function of the institute would be to provide training courses and lectures for investigators, managers, foremen, and welfare workers in the practical applications of psychology and physiology, and it would undertake investigations at factories and offices in relation to any special problem. It would study the conditions that tend to promote the health, comfort, and welfare of the worker and, also, the psychological relations between employers, manager, foreman, and worker, with special reference to securing harmony and cooperation. It would further undertake propaganda work among employers and employed and cooperate actively with organizations of both, for the furtherance of national unity and prosperity. It is needless to state that in order to carry out this program in an adequate and a satisfactory manner a considerable amount of money will be required. The maximum income deemed necessary is £6,000 for the first five years, but it is hoped that an appreciably larger sum will be obtained so that the Institute may be able to start its work on a scale commensurate with the problems with which it will have to deal. A laboratory will be established in London and, later, in such of the provincial towns as may seem desirable, and it is intended to secure the services of a number of experts in psychology and physiology who will give their whole time to the work. After five years it is considered that, to a large extent, the Institute should be able to support itself out of the fees which it would charge for its services, as in making mental and physical tests and giving advice as to the suitability of individuals for particular occupations. But it would not work a profit and all its income would be applied in promoting its objects.

Dr. C. S. Myers, who is probably the foremost psychologist in this country and who is an enthusiastic advocate of the application of psychology to commerce and industry, and who is an ardent supporter of the scheme sketched above, writing in the *London Times* of April 8, 1920, adds the following notes regarding the proposed National Institute of Psychology and Physiology applied to industry and commerce:

(1) The Institute will have very close relations with the Industrial Fatigue Research Board, which is giving

it unanimous support. There will be neither overlap nor rivalry between them. They will, it is hoped, share a common laboratory and library. The work of the Fatigue Research Board will continue to center about fatigue in different industries, while the proposed Institute will determine in individual factories and offices the best methods of reducing fatigue and monotony, of selecting workers for the occupations for which they are mentally and physically best fitted, and of distributing the hours of work and rest. It will provide training courses in industrial psychology and psysiology, study the psychological relations between management and labor, and spread the general results of its work.

(2) It will be run without profit and its investigations will be undertaken by a scientifically trained body of workers. Thus, it will come to take up a position in regard to the human side of industry similar to that occupied by the National Physical Laboratory on the mechanical side.

For the purpose of efficient coordination of research, a scientific committee is being formed of the leading psychologists and physiologists throughout the country who are especially interested in the industrial and commercial application of these sciences. The Institute will give grants to laboratories in universities and technical colleges where investigations on the human side of labor require assistance. The personal well being of the industrial or office worker is manifestly of the first importance, and, of course, psychology and physiology enter largely into the question.

Otto P. Geier, M.D., President of the American Association of Industrial Physicians.

If a person works to fatigue due to excess in duration of labor in specialization, repetition, strain, or speed, this person cannot give of the best. A monotonous task is probably the most tiring, and the efforts of the psychologist will be bent towards alleviating the situation from this point of view and also from all the other standpoints which come within its province. Perhaps preventive psychology will be found of the greatest use. Its value, or rather the value of the advice given by its exponents, with regard to the choice of a trade or industry, is too obvious to need emphasis. It is the square pegs in the round holes which are responsible for a great deal of bad work and for much of the discontent which exists among the working classes. So far as Great Britain is concerned these matters apply to between 130,000 and 150,000 factories in which twelve million people spend one-third of their lives, besides a vast number in offices. The proposed establishment of a National Institute of Psychology and Physiology is not only a long step in the right direction but is a proposal marked by sound common sense and will make immediately available for practical uses the studies, both of the experimental laboratory and the direct observation of workers and working conditions. Waste of time and the unnecessary fatigue which may be due to ignorance will become inexcusable.

London Correspondent.

THE GROUP INDUSTRIAL SURGICAL HOSPITAL

By A. MONCRIEFF CARR, M.D., United States Public Health Service, Philadelphia, Pa.

By a group industrial hospital is meant a hospital serving a large or small group of industries, preferably of the same type. Few single industries can afford to maintain establishments and employ the best surgical personnel and necessary skilled help required for adequate service. So we have a few larger industries fairly well served, but innumerable smaller industries, not being able to secure the best surgical skill or hospital care because of expense of maintenance, have to take what they can get, to the detriment of the injured.

At present the great mass of the injured are treated in general hospitals and no special care is given. The injured man is seen by the "visiting" or by the plant physician, and administered to by the intern, whose treatment is very largely that of experimentation. Often the visiting surgeon is a general surgeon and knows little of modern bone surgery or other industrial surgery, and nothing at all of industrial relations. The nurses are pupils and do not appreciate the problem of the injured worker. From a personal experience, as chief resident in a hospital of a large manufacturing center, I know that it was a common thing among the staff and nurses to regard the industrial case as a nuisance.

A reasonable and practical solution of the problem would be a central hospital, with outlying dressing or emergency stations, organized for prompt, efficient service, serving a group of industries, emergency and surgical; cooperative and follow-up, reconstruction and rehabilitation services, with a selected, Trained personnel, developed on a unit system for the special needs of the group, should be features of the hospital.

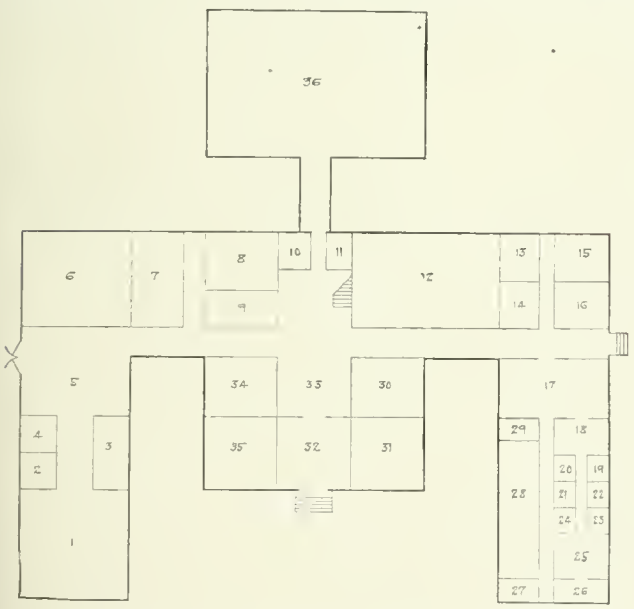
In connection with the planning of a central hospital, the importance of a survey of the industrial group should be emphasized. Types of accidents should be estimated, comparison made with other groups, so that an intelligent plan may be perfected. For instance, a survey of New York's lower west side would reveal an immense amount of shipping, which spells serious accidents and infections; the congestion of traffic points to the need of establishing a central "base hospital" with outlying "dressing stations" on the "front line."

Before the various departments of the hospital are taken up in detail, it is well to call attention to the keynote of success in the salvation of the industrial cripple. This may be summed up in the term "personnel." Readers will perhaps tire of the seemingly unnecessary description of the requirements of the chiefs of the departments, herein recorded, but, heretofore, too little attention has been paid to the personal characteristics essential in the specialty of industrial surgery.

The chief surgeon is first an industrial surgeon, and preferably, one who has had experience in modern war surgery which will enable him fully to appreciate after-care, aside from the actual surgery done. As the military commander studies the daily life of the soldier, so should the industrial surgeon be thoroughly conversant with industry. It is strongly urged that the man selected for the key position of chief surgeon be a socially minded young man of executive ability, whose reputation as a surgeon can be proved by his record of successful cases. His assistants should be chosen as much for their ability to cooperate as for their natural talent and experience.

The industrial nurse should be a graduate, and not a probationer or even a pupil; neither of the latter has had sufficient experience either of life or industrial work to appreciate the workers' problem, or to realize its importance. Some will immediately say that graduates will not do ward work. Yes they will, if properly paid!

Lastly comes the question of salaries, and one of the most uncertain. It is fair, however, to say that salaries paid to fulltime men should compare favorably



First Floor, Group Industrial Surgical Hospital. 1. Disposition or observation ward. 2. Ward toilet and bath. 3. Patients' property. 4. Admission baths. 5. Admitting room. 6. Dressing room and records. 7. Apparatus repair and splint shop. 8. Ward and operating room supplies. 9. Pharmacy. 10. Bed elevator. 11. Passenger elevator. 12. Offices for chief of follow-up and three assistants. 13. Genito-urinary clinic. 14. Ear, nose and throat clinic. 15. Dental clinic. 16. Eye clinic. 17. Waiting room. 18. History room. 19 to 24. Dressing rooms, (men's). 25. Examining physician. 26. Laboratory. 27 and 29. Toilets. 28. Women's examining department. 30 and 34. Clerical force. 31. Conference room. 35. Record room. 32. Information and telephone. 33. Waiting room. 36. Engine room and kitchen.

with other business. A surgeon who nets $15,000 a year in practice could not be asked to accept less as chief surgeon; his assistants would be paid according to ability, experience, and responsibility. Nurses' salaries should be proportionate to that paid in private work, modified by the fact that the employment is steady.

It is the purpose of the following plans and accompanying diagrams to suggest a workable basis which can be modified, or added to, according to the community's needs. However, the need of a change from the usual type of general hospital, as now established, to one that more nearly fits the need of an industrial group, is indicated. What is omitted in the written description, such as office equipment and arrangement, is indicated in the diagrams; detail is left to those concerned in the final perfecting of such a hospital, the plans presented here being suggestive only. The departments are taken up in order of their importance and logical sequence, from the admission of the patient as "a case" to his departure as a well man.

The receiving department is the reception room of the injured man's home for the period of his disability. The majority of receiving rooms, even in the modern hospitals, have a gloomy and depressing atmosphere, aside from the architecture, and the patient's first impression is often lasting. From the time the case is taken from the ambulance or seen by the admitting physician until he is sent home, he should be made to feel that the best that can be done is being done, in the most efficient manner, with courtesy and kindness. No physician or nurse that has not been trained in receiving ward work has any business in this most important department; and only those who have tact in dealing with working people should be in charge here.

The record system should have brevity as its symbol; only essentials should be put down. The special dispensary card should have the following essential facts recorded: name, address, home and factory, nearest kin, social state, name of foreman, occupation, time of accident, provisional diagnosis and temporary treatment. This card should be sent to the ward with the patient, with the additional data of: bath given, property listed, tetanus antitoxin administered, and statement as to whether the case is infected or clean.

Receiving Department Work Important

In the arrangement of space in most general hospitals, little or no attention has been paid to doctors' or nurses' suggestions as to the convenience or even necessity of proper apparatus in proper places, or of space for turning corners, or adequate lighting. Heretofore an architect has been asked to draw a plan based on his knowledge of previous plans, and he has often disregarded suggestions made by those most concerned in the future service of the building. Many hospitals have a receiving department, ment seemingly an afterthought it would seem from the appearance of some of them. It is suggested that this department be given consideration from a practical standpoint.

With the chief surgeon a full-time man, it is possible for him to see immediately the cases brought directly to the hospital, or sent in by outlying stations, and pass judgment on the further disposition of the patient, as to proper ward placement and initial treatment. A ward of sufficient size to meet emergency needs should be established in connection with the receiving department. As it is now in most general hospitals, the "case" is seen by the intern, and the most frequent expression heard is: "I guess we'll put him in such and such ward." Sometimes it has been half a day or whole day before the chief surgeon has seen him. The routine of this department should be carefully and minutely outlined, with no openings for mistakes. Lastly, a routine administration of tetanus antitoxin should be a steel-bound rule, neglect of which should mean immediate dismissal, as it meant court-martial in the Army overseas.

Examining Department

It would be an insult to present day knowledge not to include in such a program a department for pre-employment and periodic physical examinations. The arrangement of examining, waiting, dressing, and record rooms

should be such as to enable one doctor and attendant to examine a reasonable number of applicants in a short time. If the amount of this work proved to be very great, a full time examiner would be required, and for the best results it has been found that better records are made by one doing this work exelusively, instead of by members of the staff taking turns at it. In this department could be placed any special clinics, *i. e.*, eye, ear, nose and throat, genito-urinary, and dental, as indicated by the survey, and the policy of the management.

Ambulance Service Provided

It would be good for every ambulance surgeon and driver to ride in an ambulance—as a patient! The longer the ride, the sooner would be brought about the necessary reform of almost every present ambulance service. Most ambulances are driven as if the patient were on a joy ride, and the pavement of glass instead of cobbles and trolley bunkers. The present qualifications of the usual driver are knowledge of streets, and experience in driving. It is maintained, however, that every hospital should be equipped with up-to-date and comfortable ambulances and should employ a personnel trained in handling sick people. If there are outlying stations there should be an ambulance to serve each one, supplementing the central service.

The Surgical Department

In considering the operating department, one cannot get much further than principles. The scope of industrial surgery is largely fracture work, repair of large wounds, which includes nerve and tendon injury, or a combination of all these.

A well known, successful industrial surgeon, who was also a chief surgeon, stated that he had had extremely few infections in fifteen years of experience. He said the reason for his success was partially due to his constantly keeping in mind the maxim of that master mind and hand, John B. Murphy, that the way to prevent infection is to keep away from infection.

At any rate, the thought seemed a good one, and from it comes the idea of separate operating rooms for infected cases and clean cases, respectively; and, by separate is meant operating room itself, sterilizing room, supplies, instruments, anesthetizing room, scrub-up room, etc.

The size, arrangement, equipment, operating routine, cannot be given space here, but a few salient points regarding surgical equipment would aid in making things run smoothly: Having two full sets of surgical instruments; two teams of surgical nurses; anesthetizing on the operating table; swinging doors done away with, and electrically operated sliding doors substituted; bacteriological tests made for slips in surgical routine; bacteriological tests in sterile routine of gauze and sutures; location of operating rooms convenient to wards; and heated passage to and from operating room and ward.

In consonance with the idea of separate operating rooms for infected and clean cases, it follows that separate wards should be considered.

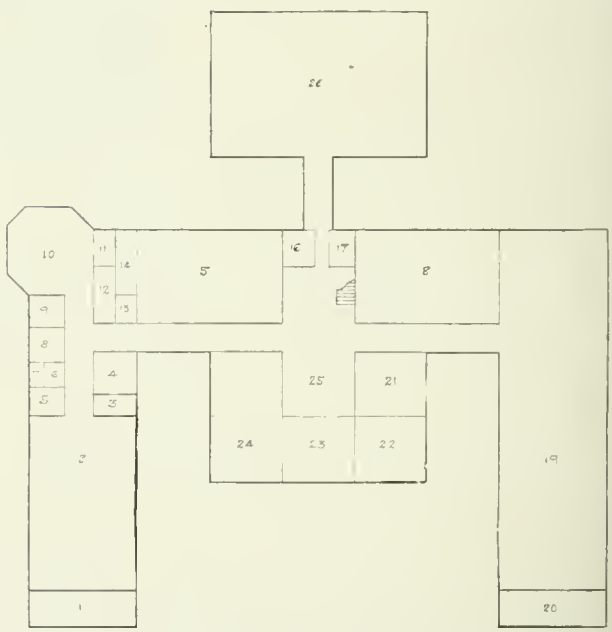
When a case adjudged clean develops infection, it should immediately be moved into the infected ward, and all the dressing instruments thoroughly disinfected and sterilized; the infected case should be treated as a danger to other patients. Grouping of similar cases not only is easier for the nurses, but the psychology of it, in regard to the patient-employee, is sensible; this prineiple could be followed with benefit throughout the entire time of hospitalization.

As to capacity and arrangement, referenee is made to diagrams. The ward of ten or twelve beds is easier to manage than one of twenty or twenty-four beds, which is usual even in many modern hospitals, and the work of the nurses in a small ward is more effective. This department would be incomplete without a plaster room with full anesthetic equipment; the splint and fracture apparatus room should not be attached to the ward, but should be an entirely separate room near to the repair and carpenter shop. A master carpenter or cabinet-maker, capable of making every known splint or its modification, on short notice, should be in charge. There should be an abundance of every possible appliance.

It is a question whether a solarium should be attached to each ward, or whether a solarium should be built to accommodate all the hospital cases. Certainly a smoking room, equipped with necessary amusement paraphernalia, should be a part of each ward.

Ward for Medical Cases

If the survey reveals a sufficient number of medical cases to necessitate a special ward, its construction need not differ materially from the other, except the provision of two quiet rooms. It need not be as large as the surgieal wards. If there is a venereal clinic, a separate ward should be arranged for; but this depends on the policy of the management.



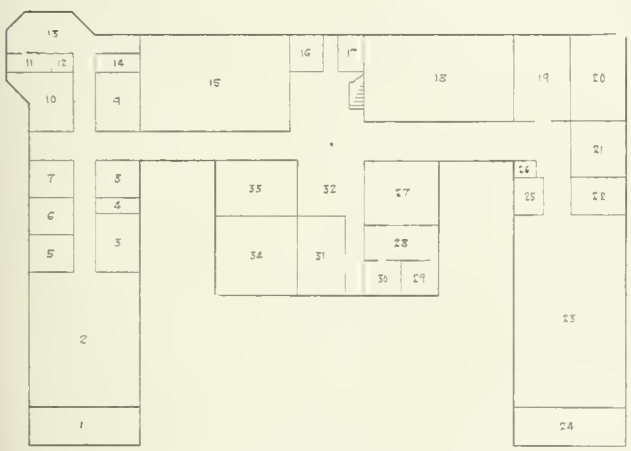
Second Floor, Group Industrial Surgical Hospital. 1. Solarium and smoking room. 2. Clean surgical ward for 12 beds. 3. Nurses records, etc. 4. Dining and serving room. 5. Ward toilet. 6 Linen room. 7. Laboratory nook. 8. Plaster room. 9. Anesthetizing room. 10. Operating room with automatic sliding doors. 11 Scrub-up. 12. Sterilizing. 13 and 14. Surgeons' smoking and dressing room. 15. X-ray and laboratory departments. 16 and 17. Elevators. 18. Offices of chief nurse and assistants and nurses' rest room. 19. Infected ward, homologous to clean ward. 20 Solarium. 21. Reference library and conference room. 22. Offices of chief surgeon and assistants. 23. Office of superintendent. 24. Case records, clerical force and bookkeeping. 25. Waiting room. 26. Dining rooms for all personnel.

Laboratory and X-Ray Department

Laboratory work could be largely confined to bacteriological work, with necessary routine tests when called for. Owing to the nature of the work in such a hospital, every facility for research work in bacteriology and serology should be provided as an aid to the surgeon. Emergency sera could advantageously be kept on the wards and in the receiving ward, and a stock supply in the central laboratory. A resident pathologist is pre-requisite.

The x-ray is of course an indispensable part of an industrial hospital. However, if a bedside outfit were part of the equipment, it would add considerable efficiency and obviate a great deal of delay and discomfort to the patients. More attention should be paid to progress reports in this department, leading up to a final report before the patient leaves the hospital, or even a year after, for review of the case at the staff conference.

In this department comes the second stage of a man's return to work, and in most cases it is the hardest for him. It is also difficult for those who have his care. So much has been written on the psychology of the cripple and the treatment of his mental attitude during convalescence, that those interested are referred to the many articles on reconstruction published during the war. However, some things are necessary besides mere equipment; "personal touch" should be considered the most useful asset in this department. The convalescent industrial case is human and during the period of compulsory inactivity he needs encouragement; the interest taken by someone who understands is much appreciated. Nowhere can the convalescent receive more sympathetic encouragement to get back on the job that in this department, and the selection of a personnel under the direction of a surgeon experienced in this work should be considered of paramount importance.



Third Floor, Group Industrial Surgical Hospital. 1. Solarium and smoking room. 2. Medical ward for eight beds. 3. Ward dining and serving room. 4. Linen closet. 5. Ward toilet. 6. Nurses' records, etc. 7 and 8. Quiet rooms. 9 and 10. Semi-private rooms. 11 and 14. Private baths. 12. Linen closet. 13. Sun parlor and smoking room. 15. Residents' quarters. 16 and 17. Elevators. 18. Gymnasium, machines, electrical apparatus. 19. Recreation and smoking room. 20. Vocational work. 21. Dining and serving room. 22. Nurses' records, etc. 23. Convalescent ward for 12 beds. 24. Porch. 25. Ward toilet. 26. Linen room. 27. Massage, whirl and pool baths. 28. Rest room. 29 and 30. Douche and light baths. 31. Clerical force. 33 Offices for chief of reconstruction and assistants. 34. Residence recreation.

The personnel should consist of a surgeon accustomed to handling industrial workers, having a fair knowledge of many of their individual jobs, and able to demonstrate the necessary treatments in each case. He should be allowed to select his own workers according to their ability, personality, and willingness to cooperate; the number of workers should be sufficient to care for easily, without haste, all the cases under consideration.

Physio-therapy includes: the application of massage, electrical and manual, hot and cold water, baking, muscle re-education, and gymnastics. The arrangement of the various rooms should be determined by the order of their use. Massage tables, baking apparatus, light and whirlpool baths, with electrical attachments at each table for any necessary applications of electrical currents, can be in one room; machines and appliances for muscle re-education and gymnastics, require a room by themselves. If a department of hydrotherapy is required, a special douche room and vapor or light bath compartment, with connecting rest room, is essential.

The card system here is most important as a progress record, and should contain: surgical history, diagnosis and proposed treatment; all measurements of motion, strength, and other notes of progress should be carefully recorded for final review at weekly or monthly conference, both by the surgeon in charge of the case and by the chief surgeon.

The Commissary Department

A hungry soldier cannot fight efficiently, and neither can efficient hospital work be done on an inadequate and tasteless diet. If the story of a nurse who has had eating experiences in over twenty hospitals, in twenty different states, is to be believed, then the food department in most general hospitals is very often the most poorly managed. It would be hard to put one's finger on the exact cause of the usual poor commissary existing in most hospitals today; some say graft, some inefficiency in buying; some blame the cook, and some the dietitian. One does not hear complaints about the majority of good hotel dining rooms, though the problem is about the same. Hotels manage their kitchens on a profit and loss basis, and give service accordingly; hospitals should assume this attitude, at least, and profit would accrue from satisfied personnel and patients, besides an actual saving from efficiency.

A slight change in the usual system now existing is suggested. It is proposed to put in charge a hotel-trained chef, who will have entire authority in preparing the food. A nurse who has had training in dietetics will consult with the chef in regard to all food for the patients, and prescribe the menu.

The need and advantage of re-training an injured workman has been shown to be an essential part of any scheme for reconstruction, by the splendid work done during and after the war, in Europe and in this country. There are numerous plans from which to choose, and their application in the group industrial hospital is easily accomplished.

A few essential principles should be considered for effective work: vocational training, either along the line of the patient's work or in some similar trade, should begin in convalescence, even before the patient is out of bed; the book and chart work can be quite easily started in the ward. Before the first week is ended, an injured man should be surveyed, an estimate made of his probable disability, and also of his capability, classification recorded, and the training offered him. It is more reasonable to emphasize an injured man's assets rather than his liabilities, and the mental attitude of the usually discouraged cripple when guided along the proper channels, not only gives him an opportunity for a "comeback," but puts him in such an environment that he wills himself into getting well and back on the job.

There are three main classes into which most injuries fall, and in some cases the man requires re-training:

(1) Fractures and sprains of upper extremities.

(2) Fractures and sprains of lower extremities.

(3) Contractures, nerve injuries and muscle atrophy.

There might be added another class to include medical cases. These are basic, and disabilities can be rated under these heads for all practical purposes. After a man has had a primary training in the hospital school, there could be a system of transfer to one of the workshops of

the group, where he can finish the practical work. Such a department would call for the careful supervision of the surgeon in charge of reconstruction; teaching can be done by men or women trained in such work.

Quartermaster's Department

This department can be divided into two depots, one for ward, operating room, and dispensary supplies, and another for general supplies.

(1) *Hospital Supplies.*—A pharmacist, with an assistant who is a graduate nurse, should be in charge of hospital supplies. These would include drugs, chemicals for disinfection, laboratory, ward and operating room apparatus, and other necessary material, such as raw gauze, instruments, etc.

(2) *General Supplies.*—These would include all supplies for kitchens, laundry and office. This depot should be on a strict business basis and have a thorough checking system, and managed by a storekeeper.

Follow-Up or Social Service

This department should be an integral part of the hospital, and the idea of charity, so general in hospitals at present writing, done away with. The same care should be used in the selection of the personnel of this service as that of any other department, basing it on experience and training in industrial relations, personality, and enthusiasm for the work.

The work could be divided as follows: (1) Dispensary. (2) Wards. (3) Outside.

These are equally important. The record work would include: records of all patients, in the hospital and discharged, with a brief summary of hospital record; weekly or monthly report, if called for, of all patients discharged within one year or longer; weekly ward reports; family follow-up reports; vocational reports; employment reports.

A chief with two assistants, one for the dispensary and ward service and one for the outside work, empowered to select the remaining personnel sufficient for effective work, should be placed in charge and allowed to manage the department without interference.

The record system should have brevity and simplicity as its features. One of the essentials of all follow-up work is a clear history, and an interpreter is an absolute requirement in this country of polyglot languages, and is not only useful in this department, but frequently very necessary to the surgeon.

Just a word on outside work: While working with the War Risk Insurance Bureau, it was found that a man would be willing, almost always, to go to the hospital or sanitarium, or in training at the Federal Board, provided his family was taken care of. It would seem, therefore, that if, while in the hospital, an injured man knew that his compensation was paid promptly, and that his folks had enough to eat and wear, the bond of loyalty to the hospital and his employer would be strengthened; and he would, forever after, be a booster for the service. Besides this, he would be greatly encouraged to make an extra effort towards a complete and rapid recovery.

The Record System

If at all possible, a complete card system is advised, doing away with the long history and treatment sheets which continually inspire verbosity on the part of historian and nurse. The system of card index is universally satisfactory, and, in the case of a special hospital where the history is not a part of a teaching system, it would more than prove its worth in compactness, durability, and efficiency.

In an industrial hospital most of the cases are surgical, and do not require the taking of any lengthy previous history, but, nevertheless, do require certain essential facts to make them complete. A few of them can be mentioned here:

(1) How, when, and where accident happened. This should be carefully recorded, and, if necessary, corroborated by witnesses, better by the foreman.

(2) Physical examination of stripped patient to include any other injury or any complication aside from chief complaint or disability.

(3) Daily notes of progress and treatment made by surgeon in charge.

It is unnecessary to enumerate details concerning the card used; the above are points noticed in review of numerous industrial surgical histories, conspicuous by their absence. The importance of a record system that really records is inestimable—establish a good record system before the hospital is built; otherwise a litigation may start which depends on one small record that is not complete—the cost will wipe out a fund sufficient to establish a bed in perpetuity.

The purpose of industry is production for profit, and a great deal of the profit depends on the physical fitness of the real producers—the workers.

Heretofore there have been three main parties concerned in the welfare of the employee—the worker, the manufacturer, and the accident insurance company. These three should get together on a business agreement, and each receive an equal share of the benefits. The worker would receive health service worthy of the name, and none is too good; the employer would see an increase in production through a healthy and contented working force and a lessened labor turnover; the insurance company would profit accordingly.

It seems a destructive attitude for one class to criticize another, and certainly does not get anywhere in solving the problem. The writer firmly believes that no final adjustment of things will be reached until the three classes get together on an equal basis, each considering the other necessary to the plan. Perhaps the idea is too new, or sounds too idealistic for these strained times, but eventually there will be an adjustment of this problem and some such plan will be the working basis.

There are some things that cannot be done, and one of them is the prompt and efficient organization of group hospitals, with all their ramifications, by the State or Federal Government; somehow or other, politics creep in, with its consequent inefficiency and endless red tape, which has the inevitable result of slowing up the machinery. The competition which would be stimulated by the group plan should keep up a better standard of efficiency. Legislation is a necessary aid, but the better plan is to prove that good service is the only right way, and not to compel those concerned to toe the line because of the law. This is not speaking in disparagement of the United States Public Health Service; however, this splendid organization is hindered at every turn by lack of funds for the developing of present work, such as hospitals for sick soldiers. It already has too much to do.

The establishment of group industrial hospitals, as outlined above is a practical and reasonable answer to the solution of the problem of the industrial cripple, injured by accident or disabled by some other health hazard.

In conclusion, what benefit will be derived from work done during the great war, both with the army at the front and in industry at high pressure at home, if not applied for the good of industry at large?

WOUND INFECTION IN INDUSTRY*

By DRURY HINTON, M.D., Medical Supervisor, Philadelphia Works, E. I. DuPont de Nemours & Co.

THE suggestions made in this paper are based on experience gained as an intern with Dr. George W. Crile, at the Lakeside Hospital, Cleveland, O., on twenty-three months service in France with a special assignment upon the secondary closure of wounds during which time some three hundred were treated; upon one year's experience as instructor in the Surgical Dispensary of the Hospital of the University of Pennsylvania; and one year's experience as an industrial surgeon, with the Dupont Company, in which last experience the method successfully applied to the injuries incident to the industry of war, were employed with satisfactory results to the injuries occurring in the industries of peace.

The Defence Against Infection

In war industry the surgeon's duty is to return the man promptly to the firing line, in peace to the working line. All wounds are potentially infected, but heal promptly if made and kept surgically clean. In war, there was some excuse for infection, for often there was a considerable lapse of time between the injury and the first adequate surgical treatment. In industrial surgery there is no excuse for infection, since there the lapse of time is negligible as the surgeon on duty should be prepared for immediate action.

The unbroken skin is the first line of defense against infection. Blood circulating freely through the capillaries is the second line, and is the most potent antiseptic known to science.

A scratch or superficial cut should be washed with an antiseptic because there is no dead tissue, and the antiseptic reaches every part of the wound. Thereafter a dressing is needed to protect against further infection and repeated slight trauma, such as may occur from rubbing or bending motion at a joint. Local splinting may be needful, but rest of the part is not desirable since use stimulates the circulation and hence accelerates healing. The best antiseptic for scratches and superficial cuts is Dichloramin-T, the best dressing is a few layers of sterile gauge, strapped on with adhesive.

For torn and bruised wound, antiseptic *per se* are valueless because they cannot reach all parts of the wound; they cannot penetrate the dead tissue into which infection is driven and all of them are to an extent devitalizing to the vascularized living tissue. Such a wound is treated by one packing of gauze soaked in sterile oil. The surrounding skin is then sterilized by a gauze scrubbing with a saturated solution of sodium bicarbonate, then a gauze wiping with 60 per cent alcohol and, finally, with ether. The sterile packing is then removed from the wound. All dead or partly dead structures are cut away with a sharp knife, since tissue torn and crushed to death is always surgically dirty and never comes to life. Hemostasis is made complete, and the raw vascular surfaces are placed in accurate apposition. Then stitches are applied, preferably buried, and no dead space left. If the wound cannot be closed without undue tension, partial closure is indicated, further operation being left for a later date. Stitches which shut off blood supply promote infection.

The wound should heal under one dressing. The dressing should be light, not more than four layers of gauze; small, just covering the wound; and held in place by narrow adhesive straps. The wound should be kept at rest, but circulation should be encouraged by movements or activities other than those which directly affect the relation of the wound surfaces of each other. The light dressing keeps the skin dry, allows ventilation and what is most important, permits prompt recognition of discharge which, when seen, calls for a change of dressing, this procedure always to be accomplished by using sterile instruments. A thick dressing keeps the discharge warm and moist in contact with a sweating skin, where it can do much harm.

Punctured wounds call for treatment in accordance with the nature and the amount of infection carried by the penetrating instrument. Needle and pin punctures, if the part be rested, are usually harmless. Puncture with dirty meat hooks, rusty nails, and other such injuries are also contused and lacerated, and, as they contain at their deepest part dead and infected tissues such wounds call for immediate opening to their deepest part, removal of ragged and torn muscle and fascia, with closure as for incised wounds. The injection of an antiseptic in the tract of such a wound is often times helpful to the surgeon.

Tetanus does not occur in wounds that are kept clean, as it requires for its development mixed infection and, usually, infection under tension. Tension means bloodless tissue, which means dead tissue, which means culture media for bacteria.

The results of the treatment outlined have been followed out in some twenty-four hundred cases, and there have been only three infections in the past year, two from hand infections and the third involving a foot. All three were because the men failed promptly to report to the dispensary for treatment.

Safety in Prompt Measures

Our rule requires a man even though his injury be a scratch to report at once to his foreman who sends him to the dispensary.

In the case of blisters, common forerunners of palmar abscess, we have found that infection can be obviated by puncturing, injecting Dichloramin-T through syringe or catheter and dressing.

In dispensary practice, where infection has occurred, always because of delayed or inadequate treatment, we have found the cure of abscesses to be hastened by two small incisions rather than by one large one, permitting through and through drainage and irrigation with 2 per cent Dichloramin-T once or twice per day. Drainage is left in for only a few days; the protecting dressings were light, and strapped on with adhesive.

In the spreading infection, the use of early surgery, consisting often of the anticipatory incision, is recommended; this to be followed by the application of heat, hypertonic solutions, and adequate splinting. From our experience two principles as to practice may be deducted: (1) The industrial surgeon will save his company annually many hundred times his salary by giving the employees prompt and adequate surgical service; and (2) where many infections occur among employees, it is certain that they are receiving neither prompt nor adequate surgical service.

*Read before the Fifth Annual Meeting of the American Association of Industrial Physicians and Surgeons, New Orleans, April 26-27, 1920.

THE EXPERIENCE OF THE MEDICAL DEPARTMENT AT NITRO, W. VA.*

By J. A. WATKINS, M.D., Medical Officer in Charge, Department of Industrial Medicine and Public Health, University of Cincinnati; Medical Director, Lunkenheimer Company, Cincinnati

THE results obtained in inoculating against typhoid fever were not so satisfactory as the measures employed for the prevention of smallpox. This phase of the work is of interest on account of the fact that the conditions at Nitro seemed to offer a favorable opportunity to test the measure on a large scale. The great difficulty in this instance was experienced because of the severity of the reaction and difficulty in having the patient return for second and third treatments. The first inoculation was rarely refused, but it was with great difficulty that these persons could be convinced of the desirability of returning for the second and third injection.

In the beginning triple bacterin, *i. e.*, typhoid paratyphoid "A," and paratyphoid "B," were used. Violent reactions were observed in some, and very severe reactions in practically all instances. After experimentation and inquiry into this subject it was thought that the paratyphoid "B" strain was probably the cause of the severe reaction. Paratyphoid "A" and "B" were discontinued and the straight typhoid bacterin used. This protective measure was inaugurated and pushed with a great deal of energy, starting early in March.

It is well that such precautions were taken for the Kanawha Valley, in which typhoid fever had been reported as endemic for a number of years, experienced an unusual prevalence of this disease during the summer of 1918. The unsafe condition of the milk supply was generally recognized, and the water supply of Charleston, near which city Nitro was located, was publicly condemned through newspaper notices by the State Board of Health. It is probable that the condemnation should have been also made of the water supply of several small suburbs in the neighborhood of Charleston and Nitro.

In addition to the exposure of Nitro employees and residents to this great source of infection, many thousands of whom visited these towns daily, many employees swam the Kanawha River, a stream grossly polluted by sewage, and in other ways exposed themselves to this disease in places without the control of the Nitro authorities. Preventive typhoid inoculation had been made practically compulsory at Nitro since the first week of March, several thousand persons having been so treated. Owing to the large labor turnover, however, many of these persons had left Nitro, while others arriving would thus be exposed in Charleston and environs to this infection before arrival at Nitro and before sufficient time had elapsed for them to receive the benefit of prophylactic treatment. A number of persons also arrived at Nitro ill with this disease, requiring to be taken from employment office to hospital.

The subject of typhoid fever received the careful attention of the medical department; the epidemiology of every case was traced in detail; complete data was available, and all precautions were taken. A total of 105 cases received medical attention from the medical department with a diagnosis of typhoid fever. Of these 105 cases it was possible to confirm the diagnosis by laboratory means in only fifty-one instances. The remaining

*The third installment of an article on the experience of the medical department at Nitro, W. Va., published in successive issues of Modern Medicine, beginning in April, 1920.

fifty-four cases exhibited obscure, slight fever from two to nine days duration, with some gastro-intestinal symptoms, and purely for precautionary reasons or a public health standpoint were diagnosed on clinical signs only, hospitalized, and cared for as typhoid fever. In view of the prevalence of gastro-intestinal complaints, it now seems probable that the 54 cases last mentioned should have been classified with these cases.

Of the 51 cases confirmed by laboratory diagnosis it was possible to trace the origin epidemiologically to the following places: 7 to Dunbar, W. Va.; 1 to Rockford, Ill.; 16 to Charleston, W. Va.; 4 to Chicago, Ill.; 3 to Lock 7, W. Va.; 1 to Boston, Mass.; 10 to St. Albans, Vt.; and 1 to St. Louis.

While two originated in either one of the following cities as the persons were taken sick within a few hours after their arrival at Nitro, and during the incubation period of the disease had been in one or several of the following cities: Cincinnati, Kansas City, Chicago, St. Louis, New York, or Washington. The origin of six was traced to Nitro. Three occurred in a private mess run by several civil engineers on the outskirts of the plant itself. Epidemiological study in these cases traced the source of the infections to a typhoid carrier who was employed in the commissary department of this mess. One case, a nurse, probably was infected at the bedside. It is very evident, therefore, that an enormous amount of infection was in the valley and that the most ideal conditions only could have hoped to have excluded typhoid fever from the employees of the plant.

Among the cases admitted and definitely diagnosed as typhoid fever were a number of cases which had received prophylactic treatment: 2 had completed triple vaccine prophylactic treatment in the United States Army five months before; while 10 had completed typhoid vaccine treatment at Nitro, having received one typhoid vaccine treatment in Charleston; 7 had received two injections only; while 26 had received one injection only during the probable incubation period of the disease. Among those who had completed prophylactic treatment and who later were infected with typhoid, were one doctor and one nurse. It should be stated here, however, that except in one instance the disease ran a very mild course and was of short duration in those who had received prophylactic treatment. Death occurred in the case of this person who was the wife of a Nitro employee. She had completed prophylactic treatment two weeks before onset, and had lived in Charleston until taken ill, when she was removed to Nitro and hospitalized. It would seem, therefore, that such acquired immunity is not protection against massive infection, nor is it probable that such immunity is well established for some time after the completion of the prophylactic treatment.

Of the employees of the plant 55,514 received one prophylactic treatment; 35,379 received two injections; while 25,793 completed the treatment.

In addition, such treatment was insisted upon in the case of dependents of employees before being certified as entitled to assignment to a bungalow. The manner in which the women and children reported for these protective measures was very gratifying. The children were inoculated on the basis of weight up to seventeen years, above which age adult dosage was given.

TYPHOID INOCULATION OF WOMEN AND CHILDREN

Age Group	Number Treated
Under 2 years	4
From 2- 6 years	232
From 7-11 years	159
From 12-16 years	133
From 17-45 years	2,282
Over 45 years	37
Total	2,847

Incidence of Influenza

This disease ranks highest among those diseases which existed in unusual prevalence at Nitro. As stated elsewhere in this report, the medical department had advance knowledge of the pandemic and had completely outlined the precautions to be taken at Nitro, and consistently carried these out, yet we were overwhelmed with this disease. The precautions that we took were in no way different from those instituted by many others, and need not be discussed here. It should be stated, however, that were the author to prepare for another epidemic of this disease, under the same circumstances as those that obtained at Nitro at that time, he is at a loss to know what changes could be made, or what additional precautions could be taken.

The first case of influenza arrived in the person of an executive returning from New York City. The case was properly cared for from a preventive standpoint. Two days later three cases arrived from New Jersey, which were also cared for, and within a few hours a train load of laborers from Pittsburgh, Pa., arrived with thirty or forty cases aboard, which were immediately placed in the hospital and the necessary precautions, as we understand the disease now, were taken. From this time on the medical department lost track of the epidemiology of the disease at Nitro. It appeared here and there, and with an ever increasing number of cases. Within a few days we had dismissed the idea of protection of

the population as a whole and confined our activities to the medical care of the individual solely.

Various phases of the epidemiology of this disease have been discussed in many publications, and the clinical and laboratory observations are more accurate and complete than those which were obtained at Nitro. Such data will, therefore, be omitted from this discussion. Some general figures, however, are pertinent to a discussion of the disease.

In all, 6,612 cases came to the attention of the medical department; 3,031 were hospitalized; and 211 cases died. The age group, 17 to 21, presented the highest case rate and case mortality rate. It should be noted, however, that the age group, 21 to 31, at Nitro was reduced because of the operation of the Draft Law. Of those dying from influenza or its complications the greatest number of deaths occurred on the fourth day.

Safety First Activities

The safety work was organized and directed by Mr. C. B. Hayward, M. E., formerly safety engineer for the Winchester Arms Company. This department prosecuted an intensive campaign for the prevention of injury and the results obtained were not only gratifying, but rather remarkable. There are given below condensed data compiled by this department. It is noteworthy that but 0.2 per cent of the number of working hours were lost by injuries resulting from accidents.

The rate of labor turnover in *per centum per annum* was 620. The severity rate of accidents in per day 1,000-300 day workers, showed an actual loss of 7.4 hours. The frequency rate of accidents per day per 1,000-300 day workers was 0.2 per cent, only two accidents. The accidents preventable by mechanical safeguards numbered 22, with the total fatalities numbering 12. Total accidents recorded are 10,697, of which 743 were lost time accidents, and 416 were compensation accidents. The actual lost time was 12,052 days.

Organization of Sanitation

The problems of sanitation presenting themselves in the work at Nitro, though they existed in large proportion, would not require a medical education and training of the responsible person. They were problems commonly presented and repeatedly and satisfactorily met by many engaged in such work during the past few years. A man with a good sanitary engineering education, with some practical experience, and possessing executive ability, is especially fitted to carry on this type of work. It appears from the Nitro experience that the work, which is the main routine and in reality lay sanitary policing, is for administrative purposes best carried on by other than the medical officers. It involves much detailed labor and time of purely executive character. Much money and labor are expended in the United States in removing garbage, cleaning streets, and the like, by public health organizations out of money appropriated for public health activity that does not, relatively, exert its share of influence on

A typical ward in the General Hospital at Nitro, W. Va.

the state of health of the population. That the work should be done under the general supervision of the health officer seems imperative, especially that of the operation of the water supply system. This plan, however, offers the one very undesirable condition of a divided authority. With proper cooperation divided authority can exist and conflict be avoided; otherwise dangerous possibilities are presented. This was experienced at Nitro. Ordinarily the health officer of a city has no hand in the detailed operation of the water works; he should, however, examine the public supply and point out any potential dangers. Critical action on his part should carry authority. At Nitro the best operating condition did not exist between those at the water works and the public health officer. To a great extent this was due to the extreme pressure of activities in connection with the construction job; partly to a misunderstanding, or rather to a lack of an understanding, and to a lesser degree to petty personal antagonism and conflict between subordinates of both departments.

A few cases of slight abdominal distress and diarrhea were brought to the attention of the medical department early in March. The cases were mild and of little importance; they presented, however, from time to time, until the week of July 1 to 7, when the cases appeared in epidemic proportions, no less than 1,610 cases coming to the attention of the medical department during this period. In an urban community where such detailed and full medical relief was not available few of these cases would have reached a physician. The Medical Officer in Charge, in order to bring the seriousness of the condition forcibly to the attention of the executives of the plant, requested the Surgeon General to detail Professor Phelps, of the Hygienic Laboratory, to make a survey and report on the water situtaion. There were only seven recognized cases of enteritis of sufficient severity to require hospital admission. There were no deaths and few remained in the hospital more than a day or two. Prof. E. B. Phelps and Passed Assistant Surgeon Neill, of the Public Health Service, visited Nitro and went into the matter at hand thoroughly. As a result of their investigation they came to the following main conclusions:

(1) Our investigations have not disclosed with any degree of definiteness the exact nature or cause of this outbreak.

(2) The polluted character of the Kanawha River, the chief source of water supply at Nitro, the overloaded condition and general inefficiency of the waterworks, and the relations between the rainfall stage on the one hand and the incidence of cases on the other, all indicate with a considerable degree of probability a causal relation between water supply and the outbreak.

(3) Investigation developed that certain special groups among whom a high case rate occurred, were furnished drinking water of good sanitary quality; furthermore, there was a disproportionate concentration of cases among those eating at one of the nine mess halls at the plant. These facts lead us to recognize the probability of contact infection as an important tributary cause of the outbreak.

(4) The relation between atmospheric temperature and the incidence of the disease rather strongly indicates that hot weather was an important contributing factor in the incidence and severity of the outbreak.

(5) A clinical study of the patients revealed no evidence to suggest that we were dealing with a severe form of dysentery, typhoid fever, or cholera; however, the epidemiological and clinical evidence indicates that these cases of enteritis were due to the entrance of the living micro parasite into the gastro-intestinal tract.

These gentlemen recommended that the permanent water plant be rushed to completion at the earliest practicable moment; that, pending this date, artesian well water rather than that obtained from the Kanawha River through the temporary water supply be used; the elimination of conditions which would decrease the possibility of contact infection, such as stringent personal cleanliness in kitchen employees, and other minor recommendations.

Most of the recommendations were placed in effect within a few hours, and the permanent water supply was placed in operation some time later. It would seem probable that we were dealing here with a mild type of water-born gastro-intestinal infection as described by Lumsden, Frost, and others. This form of enteritis, however, showed no tendency to decrease at a greater rate than it had for some time in the past. In addition, the same type of enteritis was reported as being unduly prevalent in all the surrounding territory, not only in urban communities up and down the river from Charleston to Cincinnati, but among farmers and those in rather isolated localities in the interior. The disease gradually disappeared, however, and by September no cases came to the attention of the medical department.

Sanitarians Should Control

The disease affected very little the non-effective rate, and demanded hospital admission in only a few instances. There were no deaths, and so far as we have been informed, no sequelae. The occurrence of this disease, however, emphasizes again the necessity of executive laymen concerned with the erection and operation of a water plant to be guided by the recommendation of the health officer and bacteriologist.

The plans for the permanent water supply called for the construction of a purification plant having a capacity of ninety million gallons of water a day. There was, of course, immediate

and urgent need of a safe water supply pending the construction of this plant, of such size that months of labor were necessarily involved. A temporary system, taking from the Kanawha River, was therefore placed in operation. This consisted of movable pump units at the river edge, alum-feed apparatus, chlorinating apparatus, vertical pressure filters with a combined area of 120 square feet and a tank storage capacity of one million gallons. This plant was poorly de-

Receiving room of the General Hospital. The booths on the right are men's dressing rooms.

signed in several ways. In addition, it proved to be inadequate and was several times enlarged. A source of great danger was the manual control of chlorination system, which, together with the type of employees available at Nitro, became a great source of danger. A few mains only were placed in operation. The failure to acquire and maintain an adequate and safe supply to meet the needs of a rapidly increasing population brought to mind alarming possibilities. The sanitary department was in this emergency directed to assume the responsibility of the distribution of water from known safe sources. Wood stave and steel tank wagons and large milk cans carried on wagon trucks, were placed in operation. Pending the acquisition of a safe public supply, this department performed an immense amount of work in a commendable manner, distributing no less than 2,600,000 gallons of water.

Sewage Disposal System

The plans for the permanent sewage disposal system were elaborate. They were, however, repeatedly altered. This and other factors brought about delay of construction which at times appeared serious. In unsewered areas the standard type of Army latrine was used. Seats were washed off each day, pit burned out, and the structure kept in good repair. They were, in general, satisfactory. The great area of the reservation and floating gangs of workmen necessitated many changes of location.

Dr. Otto P. Geier, of Cincinnati, visiting Nitro at this time, suggested that a type of housed sanitary privy, placed on wheels or skids, following the gangs from place to place on the plant, and capable of proper cleansing and attention would be more satisfactory. After our experience we believe this is much more satisfactory. One seat should be provided for every twenty-five men on duty. Six seat units proved to be the size best adapted for this kind of work.

Garbage and Refuse Disposal

Garbage and refuse were at first burned in an incinerator designed by Mr. R. D. Bates, the sanitary engineer in charge. Later, garbage was fed to hogs and an attempt made to salvage refuse. The latter was not altogether satisfactory, though no good reason for its omission under similar circumstances was observed. Lumber scraps were collected and used in such incineration.

The anti-mosquito work was simple. Mosquitoes were not unduly prevalent and so far as our collection shows there were no disease carriers. The work consisted in minor drainage and oiling operations.

The problem of fly control in respect to disposal of manure presented no new phases, but difficulty

The cadaver chamber in the mortuary building, Nitro, W. Va.

was experienced because of interference with rapid and adequate transportation and disposal due to poor roads, continued rains, and warm weather; also, inability to find farmers to take the manure as fertilizer. These obstacles were, however, overcome and the condition of the stables, housing thousands of animals, was at all times satisfactory. This was due to a great extent to the assistance and cooperation of the very progressive veterinary surgeon in charge of the animals. In the period covered by this report dis-

position was made of hundreds of thousands of tons of manure.

A system of food inspection was instituted which may appear to have been too elaborate, but under the particular construction and operating conditions at Nitro it was found to be not only of value, but necessary. Nitro was somewhat isolated, transportation facilities limited, storage and refrigerator space entirely inadequate, and housing for the preparation and serving of food in general provisional only. Mr. G. W. Taylor and six assistants conducted this work in a satisfactory manner. The quality and condition of food were carefully controlled from its source to the time of consumption. The conditions under which it was received, stored, handled, prepared, and served were under the continuous observation of an inspector. All employees concerned with this work were physically examined before being employed and inspected by a medical officer twice a month. They were inoculated against typhoid and vaccinated against small-pox. Of the several million meals served no case of food poisoning came under the observation of the medical department. The officials who handled the commissary cooperated with the sanitary department in every way.

Reconstructed Milk

The unsafe condition of the milk supply in the Kanawha Valley was generally recognized. In the emergency no time could be lost in correcting this as the conditions under which corrective measures must be instituted were not conducive to a rapid or satisfactory prosecution of the work. Upon recommendation of the medical officer in charge the executive officer of the plant authorized the erection of a plant and the purchase of materials necessary for the reconstruction of milk from milk powder and butter. Aside from the administrative duties of the operation of the plant, the responsibility was placed by the Surgeon General upon the Hygienic Laboratory, Washington, D. C. Prof. E. B. Phelps, chief of the Division of Chemistry, Public Health Service, assumed charge of this work, being assisted by Sanitary Chemist Stevenson, P.H.S., and Mr. George Peck, milk plant superintendent.

The operation of this plant was of immense benefit to the medical officer in charge in his endeavors to control communicable disease, in the control of sanitary matters pertaining to food stuffs, and in the feeding of hospital patients. The chemistry and all matters relating to the process cannot, of course, be discussed here, but will no doubt be made the subject of a special report in the near future by the Hygienic Laboratory.

(*To be continued*)

CHOOSING THE INDUSTRIAL NURSE

By R. T. SOLENSTEN, Assistant Secretary National Safety Council

THE experience of the many members of the National Safety Council who have attained a high degree of efficiency in their medical work indicates that employers who contemplate engaging the services of an industrial nurse should select one who combines the qualifications of "sick" nurse, "health" nurse, and social worker.

The industrial nurse should be a registered graduate nurse because she must be equipped by training to give first aid and to care for the minor ailments of employees under the supervision of the plant physician. The fact that a woman will not turn pale at the sight of a bleeding finger, or that she has a reputation for being handy in caring for sick people, does not qualify her to undertake the responsible duties of a nurse in an industrial plant. A partly trained woman in such a position is a potential source of danger because she is liable to overestimate her own ability and at a critical time misjudge the relative seriousness of accidents or illnesses. For effective work the industrial physician, whether employed on full time or part time, needs the expert assistance which can be supplied only by a nurse who is properly trained.

It is the function of an industrial medical department to prevent sickness among the workers as well as to treat injuries and attacks of illness. Therefore the nurse who is employed in this department must be a health nurse as well as first aid and sick nurse. She must be on the alert to prevent the introduction and spread of contagious diseases through the plant. She must be capable of teaching the workers how to keep well. She must be able to recognize physical deficiencies in employees which can be corrected or relieved so as to improve their health and efficiency. She must understand the general principles of sanitation, so that she can assist the physician to make inspections of the sanitary conditions in the plant and to see that suitable precautions are taken to protect the health of workers employed at dangerous trades or operations. To render service of this kind it is quite evident that training and experience in public health nursing are required.

But it is not enough that the industrial nurse be a capable sick nurse and health nurse. She should also have the qualities of the successful social worker. The first thing that the social worker learns is to render intelligent service in a friendly way. The second is cooperation.

The industrial nurse must at all times be a friend and co-worker of the employees. If she fails to win their respect, friendship, and confidence, she will not be successful. They will not readily follow her advice and instructions; they will not voluntarily seek her services when needed and her opportunities to do the best work will be lessened. . . . She must have the personality, poise, tact, and understanding of human nature which will enable her to cooperate with all departments in the plant, as well as with all public health agencies.

Employers who have experienced difficulty in obtaining a properly trained industrial nurse will do well to communicate with the National Organization for Public Health Nursing, 156 Fifth Ave., New York City. This organization is deeply interested in industrial nursing, and its officers will gladly assist members of the Council to obtain a capable industrial nurse. The Association maintains an informal employment bureau and is in touch with public health nurses and organizations for various forms of public health nursing throughout the country.—*National Safety Council.*

MEDICAL RED TAPE

ALL men who are hired by the Cincinnati Milling Machine Company are now physically examined. Those who do not fully appreciate the advantages of a physical examination before going to work will be interested in the following:

Occasionally an applicant for a new job will say, "Why all this red tape? This is the first time I was ever required to be examined before taking a new job. What's the idea of this?" When applicants say these things it gives the plant physician an excellent opportunity to explain the advantages of a physical examination. After the examination has been made the applicant readily sees and always admits that it is not red tape, but a good thing.

The Worker's Attitude

In actual practice it works out about like this. During the examination the physician will ask, "Were you ever examined before?" The answer usually is, "No, not for several years," or perhaps, "Never." Again another one will say, "No, but I know I am all right." If the applicant has been in the army or navy he is likely to say "Yes, I wish I had a dollar for every time I have been examined." The physician then explains that no one can know his condition unless he is carefully examined, and this no one knows better than the ex-service men.

Everyone is subject to many kinds of diseases—some you know about and some you do not. All diseases are more or less a detriment to yourself. Some are contagious and a detriment to others if they take the disease by contact with you.

When a man is asked if he would want to work alongside of someone with tuberculosis he invariably answers, "I should say not." "If you were working in the shop would you want the firm to hire a man with the smallpox?" You know what his answer to this question would be. "Would you want a man to work alongside of you who had scarlet fever, diphtheria, or syphilis, making it possible for you to contract the same disease and in turn give it to someone in your family at home?" By this time the man recognizes the advantages of an examination and says, "I see it's a good thing, after all," or more frequently, "It's a good thing for me and it also protects the men in the plant."

Work Properly Adapted

Besides preventing contagious diseases from getting into the shop physical examination has other advantages. A certain percentage of people are handicapped by physical defects which become more serious if they work at certain kinds of jobs. A man may have a rupture, for instance, and not know it. Such a man is advised to get a well fitting truss before going to work, especially if the job for which he is applying requires lifting. Another applicant may have heart trouble, but of such character that certain light work would be harmless, while other heavier work would further damage his heart condition. In such a case the employment manager is advised about the situation and is thus able to properly place the man in the shop. Another man may occasionally have attacks of asthma or bronchitis. He, too, must be fitted into the plant to his best advantage. Another on examination may prove to have poor eyesight. He is advised to see an eye specialist in order to get properly fitted glasses. He can then see better to do his work more efficiently and at the same time preserve his eyesight by relieving unnecessary strain.

Several men have recently been examined for positions and found to have serious physical defects, such as tuberculosis and Bright's disease. Such men are advised frankly of their condition and are told to seek their family physician for treatment. If they have no family doctor, they are given the names of some competent physicians or specialists for their particular illness. Such men are thus placed on the first step towards regaining their health and earning power.

Sole Object Is Protection

No man is examined in this plant for the purpose of keeping him out of a job. The object is solely to protect the men already in the shop and to protect the newcomer from doing work for which he is physically not fit.

How would you like to work under a craneway if the operator of the crane was subject to heart trouble or epilepsy? It would be rather uncomfortable for somebody if in one of these attacks he should suddenly lose control of the levers and drop a ton or so of castings among a group of workers. You would probably say, "That's some management."

Every man or woman should know his or her own physical condition. The danger lies in not knowing of the existence of serious physical defects. Such people should seek employment only under the advice of a physician. Men would probably prolong their lives five years on the average if they had a complete thorough physical examination once a year. Our medical department is here for such service. Use it.—*Employees' Service News, Cincinnati Milling Machine Company.*

UNFIT MEN COST MILLIONS

Mistakes in enlisting men unfit for the strain of military service will cost this year twelve million dollars, according to the statement of Col. W. C. Rucker, chief medical officer of the Bureau of War Risk Insurance, in a discussion of psychiatry before the recent meeting of the Association of Military Surgeons in New Orleans.

"The lack of sufficient care in examining men drafted is the cause of this great expense," said Colonel Rucker, "—care that is from the viewpoint of their mental make-up and history. The men should not be entered into the army until they have had a period of probation. Weak bodies usually mean weak nerves and it takes the best and strongest bodies and nerves for army service. I hope that in the future men will be excused from army service unless they are the kind best adapted to service as they prove an enormous drain on the country after war."

Colonel Rucker said there were 77,000 cases of neuropsychiatric disorders in the American army during the war, of which 11,000 were cases of insanity. "There are still 13,000 service men in our hospital," said the colonel, "40 per cent of whom are suffering from neuropsychiatric afflictions.

In four years from now the peak of the curve, it is expected, will be reached in neuropathatic cases, and it is estimated that, by this time, the government will have to spend $40,000,000 a year to take care of them."

ACCIDENTS COST $50,000,000 YEARLY

Of the 38,000,000 working men and women in the United States the Division of Safety Engineering finds that 700,000 annually lose limbs or are laid up by accident for an average of four weeks. The money loss in wages aggregates $50,000,000. Human carelessness is chiefly responsible, and in only 12 per cent of the cases are industrial accidents directly chargeable to machinery.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

THE RED CROSS AT GENEVA

IN one field of human activity, at least, the dreams of a saner and finer international organization of world affairs which we entertained a year ago are in process of actual realization. In the spring of 1919 Henry P. Davison, one of the really great figures of the war, began to plan the utilization of the social energies of the Red Cross societies of all nations for constructive peace time service. He interviewed statesmen, he convened the leading health authorities at Cannes for advice and counsel, and at last he organized the League of Red Cross Societies, representing the Red Cross in the leading allied and neutral nations and pledged to a program of which the objects are as follows:

(1) To encourage and promote in every country in the world the establishment and development of a duly authorized voluntary national Red Cross organization, *having as purposes the improvement of health, the prevention of disease and the mitigation of suffering throughout the world*, and to secure the cooperation of such organizations for these purposes.

(2) To promote the welfare of mankind by furnishing a medium for bringing within the reach of all the peoples the benefits to be derived from present known facts and new contributions to science and medical knowledge and their application.

(3) To furnish a medium for coordinating relief work in case of great national or international calamities.

There are two particularly notable things about this action. In the first place, it involves a very definite change and a very definite enlargement in the program of the Red Cross. Established to relieve the sufferings incident to war, the Red Cross societies have long devoted their energies to the relief of distress caused by sudden emergencies, such as floods and conflagrations. The step from such remedial measures to a constructive preventive program is a long one, but it is a step wholly in line with wise and modern policy in every line of endeavor. It is better to build a fence at the top of the cliff than to erect a hospital at its base to care for the wounded after they fall over

In the second place, it is inspiring to note the speed with which this conception has been translated into action. The League of Red Cross Societies has been actually organized at Geneva and the first batch of publications detailing its plans have already been issued. Dr. Richard P. Strong, director of the General Medical Department of the League, presents a comprehensive outline of a bureau which includes divisions of bacteriology and epidemiology, sanitary engineering and vital statistics, research and publication, child welfare and tuberculosis, public health nursing and industrial hygiene; and all but two or three of these divisions are already organized and functioning. Among the Americans who are responsible for important phases of the work are Prof. G. C. Whipple, Sanitation; Dr. Thomas R. Brown, Medical Information; Col. H. A. Shaw, Communicable Diseases; Miss Alice Fitzgerald, Nursing; and Dr. S. B. Wolbach, Laboratory.

The new organization at Geneva is essentially a Health Department for the World, a bureau which should be in a position to offer counsel and inspiration to national health agencies, particularly in the more backward nations, exactly as our Federal Public Health Service advises and stimulates state health departments in this country. There are those who doubt the ability of the Red Cross to hold its clientele in peace times; but with this magnificent program we can hardly question that the needed support will be secured and maintained.

EDITOR.

THE HEALTH DEPARTMENT AND THE HOSPITAL

ONE of the most complex problems of administration is that which involves the relation between the health department and allied agencies of government. In the past the extent to which health officers should be responsible for engineering functions—such as plumbing inspection, garbage disposal, and the collection of refuse—has been frequently debated, and authorities are agreed that the assumption of responsibility along such lines is to be avoided as far as may be possible in the individual case.

Today a new set of problems covering the interrelationships between the health department and the hospital are pressing for solution. Tuberculosis hospitals are developing dispensaries and sending physicians and nurses out into the community for consulting service and follow-up work. Hospitals for mental disease are expanding along similar lines. General hospitals, through their dispensaries and medical social service, are extending their influence far beyond the hospital walls. On the other hand, the health official who is alert and responsive to modern tendencies realizes more and more fully that the provision of adequate medical and nursing service for the community is one of the most essential features of the modern public health campaign. The far sighted and statesmanlike law presented to the New York Legislature, reviewed in Modern Medicine for April,[1] is a notable example of the tendency to develop such facilities as a part of the official health program.

1. This bill failed of passage in the last chaotic days of the session at Albany, but it will be brought up again early in the next session of the Legislature.

It seems probable that in the ultimate future the hospital and medical and nursing services of the community will to a large extent be centered in the health department. As Sir Arthur Newsholme has so forcibly pointed out, anything which tends to separate public health from curative medicine is detrimental to the development of both. Progress will, however, be gradual along this line,—and should be gradual, for the administrative task imposed on a health official responsible for such a wide range of service will be a staggering one. Meanwhile, we must recognize on the one hand that health work in the homes of the people belongs logically to the health department; and yet that interference with the extramural work of the hospital would work great harm in many instances. The patient before he enters the hospital, and after he leaves the hospital, is the same patient who occupies a bed while he is within its wards; and the hospital has, or should have, the expert service to reach out and find him while his disease is curable and to follow him up to see that his cure is complete. The illogical situations which must be dealt with for the present call for a maximum of patient and broadminded cooperation alike on the part of hospital administrators and public health officials.

EDITOR.

CHILD WELFARE IN KANSAS

THE women of Kansas have taken it upon themselves to bring into the laws and life of Kansas at the earliest possible date the minimum standards of child welfare as formulated by the International Conference on Child Welfare held in Washington in May, 1919. The ambitious program is worthy of the best efforts of any state, and the women of Kansas are to be congratulated on this step of far reaching importance to their state and Nation.

The first important activity of the State Committee is to make a state wide survey to discover the present conditions in Kansas with reference to the various interests of children as outlined in the international minimum standards. The survey is an attempt to uncover the actual community conditions affecting children in industry; the health of mothers and children; dependent, defective, and delinquent children; and other general interests of children.

The machinery for making the survey is very similar to that of the war-time fund raising organizations, with state, district, county and local chairmen down to the ward canvasser. In order to avoid criticism, the survey will be strictly impersonal and no names or personal data are to appear in any of the written material handled.

Among the more immediate effects expected from the survey are the following: (1) When the survey is completed and the results tabulated, the finished report will be turned over to the Children's Code Commission about to be appointed by the Governor. This should be helpful in pointing the way to needed legislation. (2) While the survey is in progress the State Committee will be working out types of community programs to fit the various community needs as they are uncovered by the local survey. Each community will be urged to follow up the survey by promptly attending to its greatest need. (3) While these communities are carrying out their various follow up activities, the fall elections will inject some new issues in local and state politics, and those candidates elected who will pledge themselves to a platform of children's rights. (4) When the Children's Code Commission submits its report to the legislature, the entire survey organization can be used as a gigantic legislative committee to insure the enactment of a constructive legislative program.

The Kansas Women's Committee on Child Welfare has a supreme task before it and, representing as it does the united effort of the women of the state, far reaching and permanent benefits are to be expected.

JULES SCHEVITZ.

1. Bulletin Kansas State Board of Health, February, 1920.

MENTAL HYGIENE AND PUBLIC HEALTH

AS long as insanity was considered a thing apart from medicine the religious and superstitious interpretation of this disease held sway. With the development of the scientific conception of the nature of insanity, the neglect of mental disease in the past has gradually given way to modern methods of treatment and prevention. A system of non-restraint and humane treatment has been substituted for blows and punishment.

That mental disease is one of the important health problems facing this country today is the testimony of Dr. William B. Terhune,[2] medical director, Connecticut Society for Mental Hygiene. "The prophylaxis of mental disease and defect," states Dr. Terhune, "is only one of the public health problems confronting us today, but it is a subject of major importance. . . . On January 1, 1918, there were 239,820 insane patients in hospitals, and 15,863 on parole. This represents 229.6 per 100,000 population. . . . There is no public provision in the United States for the care of psychoneurotics. Therefore they are not included in the above figures. Likewise, we cannot be sure as to the number of insane and mental defectives outside of hospitals." In 1917 an expenditure of nearly forty-four million dollars was made in this county for the maintenance of institutions for the insane.

The examination of the drafted men between the ages of twenty-one and thirty-one further revealed the startling extent of mental defects. Seventy thousand inducted men were found unfit for military service because of nervous and mental disease.

It is estimated that one-third of insanity and three-fourths of feeblemindedness can be prevented, and, considering the disastrous health and social consequences of these mental ailments, the public health significance of this problem is readily apparent.

Alcohol has been found to be a contributory cause of insanity in about 8 per cent of the cases committed to institutions. Prohibition is already making itself felt by reducing this factor to a minimum. About 15 per cent of insanity is the result of syphilis, indicating a very distinct relationship between public health and mental hygiene. In urging the prophylaxis of syphilitic mental disease the author well remarks: "It is time that, as students of public health, we cease to lay the emphasis upon the venereal nature of syphilis which, after all, is its least important part, and put the emphasis where it belongs—upon the fact that it is a contagious disease."

The attack on the problem of feeblemindedness must be planned upon somewhat different lines. Since feeblemindedness is considered the result of a permanent abnormal brain condition and, therefore, incurable, the one effectual way to diminish the number of the feebleminded in future generations is to prevent the birth of those who would transmit feeblemindedness to their descendants. This is a clear example of a biological public health problem.

JULES SCHEVITZ.

2. Terhune, William B.: The Relation of Mental Hygiene to Public Health, Conn. Health Bull., January, 1920.

THE ARGUMENT FOR A BROADER ATTACK ON THE TUBERCULOSIS PROBLEM

By JOSEPH HERZSTEIN, M.S., Executive Secretary, Rensselaer County Tuberculosis Committee of the State Charities Aid Association, Troy, N. Y.

MORE and more anti-tuberculosis workers are coming to believe that progress in preventive activity demands increased attention to raising bodily resistance and promoting general health.

This is due to the peculiar nature of the tuberculosis problem. The great prevalence of the disease and the ease with which the causative agent leaves the body have resulted in a practically universal distribution of the tubercle bacillus. On this account there are not only innumerable persons with latent infection, but there are also abundant opportunities for "well" persons to receive reinfection. The change from a condition of latent infection to disease may be due to reinfection from without or to a failure of the bodily resistance which permits foci of infection to flare up. For a consummated attack on the disease it would appear, therefore, that not only must conditions for receiving the infection be reduced to a minimum but, in addition, equal attention must be given to measures for maintaining vital resistance at a high level.

A TRUE STATE OF WELL BEING

Health activities may be regarded as having one of two objectives—either freedom from disease or resistance to its ravages.

Sanitary measures are effectual as far as they go, but the immunity conferred by repeated onslaughts of disease is not a safe general measure, and the margin of safety from acquired immunity is a variable quantity.

An effective tuberculosis program is a general health program that turns to practical account all the scientific knowledge now available in the maintenance of a high level and the development of a high degree of bodily resistance.

This can be accomplished in part through the handling of other public health problems, many of which are intimately related to tuberculosis. It is the purpose of this article to indicate some of the health problems in which activity can be favorably pursued.

Before describing the points of contact of tuberculosis with other health problems, a brief statement of the existing tuberculosis situation seems warranted. The last report of the United States Census Department (1917) gives a total of 97,047 deaths in the Registration Area, due to pulmonary tuberculosis. The general estimate of morbidity from tuberculosis varies. About ten active living cases are said to exist for each annual death. At this rate there would be constantly about 1,000,000 active living cases of the disease. This would mean that one in every hundred persons in the United States is a possible source of infection with tuberculosis bacilli. Since one person may be a source of infection for months or years, the wide-spread existence of tuberculosis infection can be reasonably well accounted for.

According to Smith[1], about 90 per cent of white children between the ages of twelve and thirteen and practically all adults show manifestations of positive tuberculous infection, as indicated by the tuberculin reaction. Krause[2] states that about three-fourths of the children up to fifteen years of age show evidences of tuberculous infection.

We are led by medical opinion to believe that this early infection is the one which later in life manifests itself in tuberculous disease, when the disease finally makes its appearance clinically. This is plausible since the living bacilli of tuberculosis can be harbored in the healthy body over a period of many years. In this regard the immunity reaction of the body to invasion of tuberculosis bacilli is different from the reaction toward other pathogenic organisms. The actual life in the body of other pathogenic bacteria which fail to become toxic or numerous enough to produce disease, is very much more transient. In tuberculous infection the situation is different, the bacilli remaining dormant but viable. As Krause suggests, the avoidance of tuberculosis involves keeping the body in a condition which will hold the already contained seeds of tuberculosis rigidly localized and inactive.

It becomes apparent, therefore, that strenuous efforts must be made to insure a sound resistance so as to stave off the development of tuberculosis. With a better control of general health the maintenance of a higher general vital resistance would be possible. Some of the factors in a better

1. Smith, F. C.: Tuberculosis, Its Predisposing Causes. Supplement No. 3, to the Public Health Reports, United States Public Health Service, Washington, D. C., 1919.

2. Krause, Allen K.: Essays on Tuberculosis. Jour. of Outdoor Life, February, 1919.

health control will now be discussed as well as the points of contact of the tuberculosis problem with other health problems.

Infant Welfare Work

In the earliest years of life there exists a serious condition which is destructive not only of vital resistance, but also of life itself. A study of the New York Milk Committee[3] for the years 1906 to 1911 in Chicago, Philadelphia, St. Louis, Boston, New York, and other large communities showed that of all the deaths in each of these cities, about one-fifth took place in children less than a year old. The occurrence of so many deaths is indicative of a tremendous amount of sickness which does not culminate in death. Is it not plain that here the first blows upon vital resistance are dealt?

Although the regenerative powers of the body are very remarkable, it is often the case that an organ recovers with some morphological or functional defect after passing through a pathological condition. Whooping-cough, for example, is capable of producing more or less permanent harm to the lungs. Early disease can undoubtedly handicap a child in its later growth.

The main causes of infant mortality are (1) congenital defects, (2) digestive diseases, and (3) respiratory diseases. Respiratory diseases alone killed more than 27,000 children under one year of age in this country in 1917. Similar numbers were lost in previous years. The number of children who pass through non-fatal sieges of pneumonia and bronchitis is many times that amount. The methods of prevention of these diseases are known. Instruction to mothers in regard to the care of the baby—its feeding, clothing, bathing, and sleeping conditions—would undoubtedly reduce the amount of sickness which lowers bodily vitality.

How many of these children will be on the tuberculosis morbidity list later? We need to do more to prevent infant mortality and morbidity. Any community can reduce its infant mortality and morbidity by using knowledge already available and practices already successfully tried.

Measures for Milk Sanitation

The problem of infant welfare work is indissolubly connected with that of control of milk supply and sanitation. Milk is a food which occupies a position of supreme importance in nutrition. It is one of the "protective" foods necessary for bodily growth. Milk is often so liable to carry disease producing bacteria that it requires almost as much attention as the control of a city water supply. The milk problem has a far larger health significance than people are usually aware of.

Dirty milk has played tremendous havoc with human life. Dublin[4], in a careful statistical study of mortality of childhood in the United States for the years 1910-1915, finds that 24.4 per cent of all the deaths in the first year of life are due to enteritis and diarrhea. In the second year of life, these maladies are the principal causes of death, the percentage due to them being 27.3 per cent. Much of this sort of illness is undoubtedly traceable to bad milk.

The tender gastro-intestinal membranes of infants may be overwhelmed by a mass attack of an abundance of bacteria. The process of pasteurization can very effectively reduce this danger from milk. When the use of pasteurized milk was extended in New York City, a lowering of the death rate occurred, as pointed out by Eager[5]. After the number of bottles of pasteurized milk dispensed by Nathan Strauss had increased from 34,400 in 1893 to 3,000,000 bottles in 1906, the summer death rate among children under five years fell to 62.7 per thousand. Prior to 1893, the death rate was double this.

Milk may also be a spreading agent of other communicable diseases, such as typhoid fever, paratyphoid, dysentery, diphtheria, scarlet fever, tuberculosis, and septic sore throat.

Referring to tuberculosis, it should be mentioned that tuberculin testing of cattle has revealed the widespread existence of bovine tuberculosis. The results of state and Federal tests in forty-five states in the United States from 1893 to 1903 on 400,000 cattle, showed 9.25 per cent to be reactors. Schroeder[6] estimates that 20 per cent of the dairy cattle in the United States are infected.

Bacilli of tuberculosis in milk have been found by more than a score of workers. Hess[7] in New York City, found tubercle bacilli in 16.2 per cent of 105 milk samples. The literature shows that about 13 per cent of all samples analyzed contain bovine tubercle bacilli. Dr. Lawrason Brown[8] states it is estimated that 8 per cent of the deaths in the United States from tuberculosis are among children succumbing to bovine tuberculosis.

Milk infected with bovine bacilli is undoubtedly the cause of much bone and joint tuberculosis.

3. New York Milk Committee: Infant Mortality and Milk Stations. Special Report of the Committee for the Reduction of Infant Mortality, New York City

4. Dublin, Louis I.: The Mortality of Childhood, American Statistical Association, March, 1919.

5. Eager, J. H.: Morbidity and Mortality Statistics as Influenced by Milk. Bull. No. 56, Hygienic Laboratory, Washington, D. C., 1909, p. 235.

6. Schroeder, E. C.: The Relation of the Tuberculous Cow to the Public Health, Twenty-fifth Annual Report of the Bureau of Animal Industry, United States Dept. of Agriculture, 1908, p. 100.

7. Hess: Quoted in Parker's "City Milk Supply," p. 35. McGraw Hill Company, 1917.

8. Brown, Lawrason: Rules for Recovery from Pulmonary Tuberculosis. Lea & Febiger, Phila., 1919, p. 8.

Park and Krumwiede[9] found among 171 children under sixteen who had tuberculosis that 20 per cent was due to the bovine bacillus. A study of all investigations on this subject by Wang[10] shows that one-third of the cases of tuberculosis in children under five years is due to the bacilli of bovine tuberculosis.

Hundreds of epidemics of disease have been traced to infected milk as the source. So far as records show, no epidemics have been traced to properly pasteurized milk supplies. Distinct progress in the prevention of unnecessary disease can be made through safeguarding community milk supplies. Education of the consumer about milk and its dangers is essential. This education must be carried to the farmer as well, and to those officials who by proper ordinances can help control the milk supply. The persons closest to the production problem often know least about the sanitary aspect of it.

If a clean, safe milk supply is to exist it must be obtained from clean, healthy cows milked in a sanitary manner. It must also be handled in sterile containers, protected from infection, properly iced, and kept cold until ready for use.

General Control of Communicable Disease

The terms "diseases of childhood" and "children's diseases" have almost become classic. It is common knowledge that innumerable children needlessly go through attacks of measles, scarlet fever, diphtheria, and other diseases. In New York City alone, from the years 1914 to 1918, more than 70,000 cases of diphtheria were reported. Twice this number of cases of measles were reported during the same period. Persons are often affected whose vitality can least afford to suffer an attack of disease. Do not such attacks tend to the presentation of more tuberculous material?

If these diseases are to be further controlled, health workers should agitate for better reporting by physicians, establishment of better public diagnostic laboratory facilities, health officers who enforce quarantine, more school medical inspectors, more school and public health nurses. Popular education about these diseases is very much needed.

Importance School Hygiene

How does the occupation of being a school child affect health? It is well known that the physical environment of school and the nature of school life play an important part in the lives of young persons. How many times have we entered schoolrooms and found them either overheated or mal-odorous? One has but to stop at a school during a period of dismissal to see pale-faced or unnaturally flushed children emerge from their classrooms. There is no measure, whatever, of the mischievous part poor schoolroom ventilation plays in lowering childhood vitality. School ventilation is a health problem which still requires much attention.

Of course the large number of defects discoverable among school children are not to be laid to the door of school life. Before children come to school, many have curable defects which, if neglected, continue to retard their healthfulness during the school age. In Cincinnati, examinations reported by Roberts[11] for the Social Unit Organization showed that among 640 children between the ages of two and six, there were 1,915 defects.

If a healthier youth is to be developed in the schools, it is essential that systematic physical examinations with proper records and effective follow-up work be conducted everywhere. It has been said that out of twenty million school children enrolled, 70 per cent manifest defects which are more or less in the nature of a handicap.

Dr. Thomas D. Wood* has emphasized the special need for health work in the rural schools. He states that more than half the school children in the United States attend rural schools. From a study of over a half million records of examinations he deduces a table from which some of the data are given below.

	Per Cent of School Children with Defects Noted	
Defects Noted	*Rural Schools*	*City Schools*
Teeth	48.8	38.14
Tonsils	28.14	16.42
Adenoids	23.4	12.50
Eyes	21.0	13.50
Malnutrition	16.6	7.65
Enlarged glands	6.4	2.70

With dental caries, enlarged tonsils, and mouth breathing, so common among school children, can we expect a very effective vital resistance? How many of the present million tuberculous persons have had their physical resistance retarded during their school life by neglected defects of this kind?

Space does not permit going into other details of school hygiene, such as school lunches, open-air schools for all children, and drinking water sanitation. Tuberculosis workers will do well to exert strenuous efforts to the end that the little

9. Park, W. H., and Krumwiede, C.: The Relative Importance of the Bovine and Human Types of Tubercle Bacillus in the Different Forms of Tuberculosis. Collected Studies from the Research Laboratory, New York City Dept. of Health, 1913, p. 89.

10. Wang, Chung Yik: The Incidence of Bovine Infection of Tuberculosis in Man. Jour. of Patbology & Bacteriol., 1917, xxi, p. 131.

*Chairman of the Joint Committee on Health Problems in Education, of the National Council of the National Education Association, and the Committee on Health and Public Instruction of the American Medical Association.

11. Roberts, Abbie: A study of Pre-School Children in the Mohawk Brighton Social Unit District. The Public Health Nurse, March, 1919

rural schools on the byways are visited by competent nurses, and that school medical inspection is always accompanied by school nursing.

The motto, "What profiteth it a child that he should gain the whole curriculum and lose his health?" should be one of the first to be taught to all engaged in educational work.

Industrial Hygiene

About one-third of the nation's people are wage earners. These persons work under industrial conditions which undoubtedly have an effect on health, since about a third of each day's time, week in and week out, is spent under special conditions of work.

A cross-section of the health equipment which most of the young males in this group possessed was obtained in the draft examinations, if it is correct to assume that a major portion of the men examined came from the wage-earning class. More than half a million men, according to the report of Provost Marshall General Crowder, were refused admission to the army because of health defects. Of the entire number examined, 30 per cent were unfit for full military duty.

Taking the industrial group as a whole, we find facts which indicate that conditions of industry are often very inimical to health. Dr. Dublin of the Metropolitan Life Insurance Company, states that out of 635,449 deaths in their industrial mortality experience from 1911 to 1916, 17.4 per cent were due to tuberculosis. He states that tuberculosis is clearly the chief burden upon the vital resources of wage earners and their families.

In a study of mortality in the dusty trades, and a great many are needlessly so, Hoffman of the Prudential Insurance Company found that between the ages of twenty-five to forty-four the percentage of deaths due to tuberculosis of the lungs and respiratory diseases was a follows:

Occupations Exposing to	*Per cent of Deaths*
Mineral Dust	41.1
Metallic Dust	45.2
Vegetable Fiber Dust	49.5
Animal and Mixed Fiber Dust	49.7

The figures show that about half of the deaths in the dusty trades are due to respiratory disease alone.

That industrial conditions of factory life can bring out hitherto latent infection was shown in the English experience during the war. It was noted that an increase in tuberculosis occurred among young girls who became wage earners.

If employment conditions as such are so harmful to health as to permit latent infection speedily to gain the upper hand, effort must be made to improve conditions wherever possible. More attention to medical examination of employees, plant ventilation, humidity, temperature, fumes, dust, fatigue, and other numerous factors of importance in industrial sanitation will have a beneficial effect on the tuberculosis problem.

Water Supply and Sewage Disposal

Impure water supplies and unsafe methods of sewage disposal play a dominant part in the causation of typhoid fever and other intestinal diseases which clearly undermine resistance. About ten thousand deaths from typhoid fever occurred in the United States Registration Area in 1917. Probably ten times this number were sick with the disease during the same period, the fatality rate of typhoid being 10 per cent, or one death out of every ten cases. In the community which takes its water from polluted sources without subsequent purification, or from wells receiving surface drainage, we expect and do find typhoid. The same is true where sewage is improperly disposed of, as in unsafe privies which are open to flies.

With so many persons subjected yearly to a long continued siege of exhausting illness like typhoid it is evident that bodily resistance may be quite seriously impaired.

Where attention has been paid to the proper sanitation of water and to sewage disposal, not only has the amount of typhoid fever decreased but tuberculosis and other disease rates have declined. This has been shown in an observation described among sanitarians as the Mill-Reincke phenomenon. Efficient control of these sanitary problems has therefore a far reaching effect.

Conclusion

The various health problems mentioned above as affecting vital resistance, and therefore also tuberculosis, do not by any means exhaust the number. It is felt, however, that those pointed out are sufficient clearly to indicate the soundness of the argument that the healthfulness of those not on the tuberculosis lists must be maintained at the highest level through proper health administration and education. Detection of the disease in its early stages is important, but no program can uncover all latent cases, and immunity is to be accomplished only through the development of a high degree of bodily resistance.

In the future, tuberculosis workers may profitably and legitimately give increased attention to such allied problems as infant welfare work, milk sanitation, communicable disease control, school hygiene, industrial sanitation, community water period, the fatality rate of typhoid being 10 supply, sewage disposal problems, and to health education in general.

TROPICAL DISEASES—COLLECTIVE ABSTRACT

By GEORGE L HOFFMANN, Ph.D., Chief, Division of Bacteriology and Serology, Research Laboratory, Western Pennsylvania Hospital, Pittsburgh, Pa.

UPON casual consideration the average physician pays little or no attention to tropical diseases here in the States. This attitude must not be attributed to indifference or lack of knowledge of the subject but rather to the lack of personal contact of the physician with these pathological conditions, which are somewhat in the minority as regards general incidence but which are nevertheless of more importance than is primarily imagined.

Medically, in the past, we have been a somewhat provincial nation. This has been the natural result of our diminutive merchant marine and tropical possessions. The recent war has done much to develop an interest in tropical medicine and has forced a great many of us to work in previously unacquainted fields. This condition not only applies to the United States but includes all the countries involved in the recent struggle. It might be presumed that tropical medicine would suffer greatly as a result of the decreased activity on the part of many countries in their tropical possessions and temporary inactivity of some of the tropical disease hospitals and laboratories, which were being maintained in domestic ports, these being immediately converted into hospitals and laboratories engaged in war work. Despite this condition, however, as a result of the magnitude and scope of the military operations, the medical men were immediately brought in contact with pathological conditions other than those which they had been accustomed to treating at home. Dysentery, cholera, plague, typhus, and Malta fever, which had previously been known by literary contact alone, were now actual conditions. Malaria was soon more than the administration of quinin t.i.d.

Today we find ourselves at the beginning of a cosmopolitan epoch of tropical medicine. At least, we must have a better knowledge of tropical medicine and those of us who have previously limited our practice to the diseases of the moderate climates must become cognizant of the tropical diseases, for they are gradually coming under our observation and are a developing condition which must be properly diagnosed and treated.

Malaria

The therapeusis of malaria has been entirely revised after passing through a most thorough stage of experimentation. Nothing new therapeutically has been established but there has been a new assemblage of previously confirmed facts, and these with the best proven prophylactic and general sanitation measures have culminated into a more or less routine procedure which is most efficient.

The importance of screening and other anti-mosquito measures need not be discussed. Bass[1] has most convincingly pointed out that in some communities from 50 to 70 per cent of malaria cases are relapses and not new infections; thus the importance of the sterilization of plasmodium carriers in malaria treatment can be readily seen.

Ross and James[2] have formulated suggestions for the care of malaria patients that are well worth observing. They emphasize the importance of a correct diagnosis and lay special stress on the close resemblance of malaria to pulmonary tuberculosis, liver abscess, and enteric fever, and call the attention of the diagnostician to the type of malaria in which the daily febrile paroxysm comes on before midday, a clinical sign which renders a diagnosis of malaria moderately certain.

In a foot note to the section on treatment they mention that the taste of quinin is quickly removed by masticating a piece of bread, and also insist upon the necessity for rest in bed at the commencement of treatment with quinin. Oral administration of the drug is recommended as a routine procedure. However, the indication and technic both for intravenous and intramuscular injections are given. Subcutaneous injection is not encouraged to the slightest degree.

In the remarks in "After-treatment," the following procedure is suggested:

(a) 10 grains of quinin once daily at dinnertime or at bedtime; or

(b) 30 grains of quinin on each of two consecutive days, *e.g.*, Saturday and Sunday of each week; or

(c) 30 grains of quinin every Sunday, the amount being taken in three doses of 10 grains each, the first in the early morning, the second at midday and the third in the evening; or

(d) 30 grains of quinin taken as in (c) but every tenth day instead of every Sunday.

The authors state that the choice of procedure is usually governed by the circumstances and character of the individual case, the procedure being selected which the clinician believes will be most conscientiously followed. If relapse occurs or malaria parasites are found in the pa-

1. Bass: Jour. Am. Med. Assn., 1919, lxxiii, 1218. South. Med. Jour., 1919, xii, 190. Jour. Am. Med. Assn., 1919, lxxii, 21.
2. Ross and James: Suggestions for the Care of Malaria Patients. H. M. Stationery Office, London, 1919.

tient's blood he is again put to bed and treated as if his attack were a new infection.

Stephens, Yorke, Blacklock, Macfie, Cooper and Carter[3] in a series of studies on the therapy of malaria have been unable so far to improve upon quinin therapy though several therapeutic agents, including organic preparations, have been tried. Despite the favorable reports of Patrick[4] on the intravenous injections of quinin and antimony, the use of the latter is still considered in the experimental stage only. So far little, if any, evidence has been produced which would further the encouragement of the use of intravenous injections of antimony preparations in cases of malaria. Patrick administered the quinin intravenously, using a 5 per cent solution of the bihydrochlorid in distilled water to which has been added 0.8 per cent of sodium chlorid. He usually gave three injections of 15 grains each on eight successive days. This was then followed by 6 grains daily by mouth according to the indications. Lowenstein[5] also reported most favorable results by the intravenous use of quinin salts after extensive experiments. He, however, used the hydrochlorid of quinin dissolved in distilled water at body temperature calling attention to the fact that this quinin salt was precipitated in physiological salt solution.

Miller,[6] Neumann,[7] and Lowenstein[5] speak unfavorably of the intravenous use of salvarsan or neosalvarsan in malarial infections. They have found no results warranting its use in any of the types of malaria.

Yellow Fever

The brillant researches of Noguchi[8] have taken yellow fever out of the chapter devoted to fevers of unknown origin. The detailed articles covering his investigations on the etiology of yellow fever that he performed in Guayaquil show that in a very thorough and convincing manner he has made a most valuable contribution to medical science. Noguchi has practically fulfilled Koch's postulates as regards his leptospira icteroides and its rôle in yellow fever. There seems to be little doubt that he has made himself master of this pathological condition and there only remains to be made, if need be, a confirmation of his researches by other laboratories. Noguchi has not stopped his researches with the isolation and study of the biological properties of leptospira icteroides but is continuing his work on the acquiring of immunity against such infections which proved so promising in the laboratory. These experiments are being carried out in southern Mexico. It is apparently only a question of time until the chapters devoted to yellow fever will be completely rewritten as regards etiology and treatment, then to be complete, concrete, and definite in nature and not, only complete as regards prophylaxis.

Arce[9] in a review of Noguchi's work points out the value of his findings and their importance, especially from a diagnostic standpoint, in countries where the benign cases of yellow fever in the child or adult are so difficult to diagnose, often passing unnoticed or being confused with other pyrexias so that they may escape the prophylactic measures aimed at the extinction of the fever.

Amebiasis and Dysentery

Despite the fact that amebic dysentery has usually been considered a tropical disease we are constantly meeting these infections in increasing numbers in daily practice. Kofoid, Kornhauser, and Swezy[10] have published a comparative incidence of the various amebae found in American troops and have found the following to be the average in 1,200 men examined. Entameba nana 28 per cent, E. coli 23 per cent, E. histolytica 9.3 per cent. Owing to the wide geographical distribution of E. nana, they point out the necessity of the examiner being able to distinguish E. nana from E. coli and the other amebae. Mixed infections of E. nana and E. histolytica are apparently very common.

The presence of highly refractive bacteria-filled food vacuoles in E. nana is of great value in differentiation. The authors have confirmed Wenyon in his statement as regards the absolute diagnostic criterion of the appearance of the structure of the nucleus in the stained specimen. In E. histolytica there is a central karyosome, the peripheral chromatin being scattered over the nuclear membrane in minute granules, whereas E. nana is devoid of a central granule and the peripheral chromatin is massed in a single large clump at only one point in the nuclear membrane. This contrast may sometimes be made in the living specimen. However, it is best made by using Donaldson's[11] iodin-eosin stain for the differential diagnosis of the cystic stage. The preparation is made by triturating a small portion of the feces in normal saline and gradually adding the following staining mixtures:

	Parts
Saturated solution of eosin in normal saline	2
Five per cent potassium iodide in normal saline saturated with iodin	1
Normal salt solution	2

3. Stephens, Yorke, Blacklock, Macfie, Cooper, and Carter: Annx. Trop. Med. and Parasit., 1919, xiii, 63.
4. Patrick: Jour. Roy. Army Med. Corps, Lond., 1919, xxxii, 407.
5. Lowenstein: Centralbl. f. Bakteriol., I. Abt. Orig., 1919, lxxxiii, 333.
6. Miller: Jour. Roy. Army Med. Corps, Lond., 1919, xxxii, 483.
7. Neumann: Deutsch. med. Wchnschr., 1919, xlv, 767.
8. Noguchi: Jour. Exper. Med., 1919, xxix, 547. Ibid, 1919, xxx, 1.
9. Arce: Ann. Facul. de Med. de Lima, 1919, ii, 53.
10. Kofoid, Kornhauser and Swezy: Arch. Int. Med., 1919, xxiv, 35.
11. Donaldson: Lancet, London, 1917, April, 571.

The nuclei of E. coli and E. histolytica become clearer more quickly as the iodin penetrates than in E. nana.

Fischer[12] after careful investigations of the blood picture in amebic dysentery concludes that there is no typical change of the blood picture in cases of amebic dysentery even during the course of the disease. Matthews and Smith[13] have contributed a very important paper regarding the spread and incidence of intestinal protozoal infections in children. They found children to be infected from the second year upward and the infection to be equally common in both sexes. Of 548 children examined, all under the age of twelve years, 31.5 per cent were found to be infected with intestinal protozoa.

MacAdam[14] reports sixty-two cases of E. histolytica infection out of eighty cured by administering emetin hydrochlorid in the following manner: A total amount of 18 grains was given during a period of twelve days, administering each day 1 grain hypodermically and ½ grain orally. Following the treatment the stools were examined at regular intervals to serve as controls. Primary acute attacks and cyst-carrier cases were treated in the above manner.

Most of the work relating to bacillar dysentery has been along clinical and bacteriological lines. The question of the classification of the dysentery bacilli still apparently remains an academic one, for each worker seems to present some new group or biological feature which prevents the formation of specific group characteristics by either agglutination or classical sugar fermentation reaction.

Goldzieher[15] considers that for all practical purposes there need be but two groupings. (1) the toxic Shiga-Kruse group, and (2) the atoxic Flexner-Strong-Hiss group, making the fact of their biological difference (toxin, indol, and acid production), of their differing immune body content, pathogenicity, and clinical aspect, as well as their application to serum therapy. He also contends that the agglutination reaction is so unreliable that it is of little diagnostic value in cases of dysentery or for the differentiation of the organism into their respective groups. The statement is also made that the repeated administration of dysentery vaccines used therapeutically does not produce a rise in the agglutination titer of the patient's sera.

Yandel[16] believes that he has a specific remedy for the bacillary dysentery by administering (1) adrenalin chlorid hypodermically for the stoppage of hemorrhages, and, (2) thymol in large doses on an empty stomach as an alimentary antiseptic. He comes to this conclusion after his experience with an epidemic of 102 cases of dysentery at Sacaton, Ariz. Unfortunately, no mention is made of the bacteriological nature of the infection.

Dudgen considers the fly as the carrier of bacillary dysentery, giving the following reasons, "(1) Bacillary dysentery is most prevalent when flies are most numerous. (2) Flies, after infection with dysentery bacilli, are capable of disseminating infection twenty-four hours afterward. (3) Dysentery bacilli have been isolated from wild flies coming from places where bacillary dysentery is both endemic and epidemic. He suggests that the following points be investigated: (1) The vitality of dysentery bacilli in water, (2) the relationship of flies to bacillary dysentery, (3) the inagglutinable strains of the Flexner group, (4) the toxins of the dysentery bacilli, and (5) the preparation of a more suitable anti-serum."

Abel and Loeffler[17] report an epidemic of dysentery explosive in character, 378 cases resulting from eating an infected potato salad. The mortality was extremely low, only eight deaths resulting. Precautions were taken to prevent the further spread of the infection by (1) exclusion of further infection from the kitchen, (2) proper isolation of cases to prevent spread of infection from them, and the usual daily inspection of the kitchen personnel and food and the rigorous enforcement of personal cleanliness.

Gettings and Douglas[18] show that the biochemical reactions with 285 strains of the Flexner-Y bacilli with a small selected number of carbohydrates is a preliminary means of identification of numbers of the coliform group of bacilli, but with the closely related bacteria such as the Flexner-Y group of the dysentery bacilli it is impossible to make a classification into definite sub-groups by even an extensive use of carbohydrates. By the use of the method of the absorption of agglutinins, he found that it was possible to classify ninety-two out of ninety-five strains of the Flexner-Y group into four sub-groups. They suggest that the subgroup three may be identical with the group usually indicated as the Y group of the dysentery bacilli.

Tropical Sprue

Wood[19] shows in his article that tropical sprue undoubtedly exists in the United States, especially

12. Fischer: China Med. Jour., 1919, xxiii, 108.
13. Matthews and Smith: Ann. Trop. Med. and Parasit., 1919, xii, 349.
14. MacAdam: Indian Jour. Med. Res., 1919, vi, 363.
15. Goldzieher: Centralbl. f. Bakteriol., I. Abt. Orig., 1919, lxxxii, 437.
16. Yandel: Southwestern Medicine, 1919, ii, 4.
17. Abel and Loeffler: Ztchr. f. Hyg. u. Infektionskrankh., 1918, lxxxvii, 410.
18. Gettings-Douglas: Report Series No. 30, Medical Research Committee, H. M. Stationery Office, London.
19. Wood: Jour. Am. Med. Assn., 1919, lxxiii, 165. United States Naval Med. Bull., 1919, xiii, 449.

in the southern districts, and points out that there should be little difficulty in differentiating a sprue tongue from that of pellagra. He also states that the anemia of sprue resembles pernicious anemia. Livingston, in his discussion of the paper, thinks that beta-naphthol may prove to be of great therapeutic value in the treatment of the disease. Wood calls attention to the absence of skin lesions in sprue, which may well seem to distinguish it from pellagra. As regards mouth conditions, there is always a marked salivation and the tongue is of a marked carmin tint in the pellagrin. The stools of the pellagrin as usually liquid, more frequent, and occurring at any time, while those of sprue are large, frothy, and occurring more frequently in the early hours of the day.

Little advance has been made in treatment of diseases such a typhus, cholera, and plague. They all remain more or less a question mainly for the sanitarian. Friedberger[20] has, however, raised the question as to the value of cholera vaccines, and very clearly makes a comparison between inoculated and uninoculated cases in communities where cholera has been explosive in onset and has also as suddenly disappeared; often the abatement has been as rapid in unvaccinated communities as in the vaccinated. Nevertheless, the consensus of opinion seems to attach some value to cholera prophylactic vaccination.

Helminthiasis

Lucke[21] has published a very interesting statistical study of the prevalence of intestinal worms in troops. He reports 11.5 per cent infection out of 35,000 cases examined. These troops were entirely residents of southern states, yet the figures are instructive, for they give a fair average of the intestinal infections. The study is quite instructive, listing some fifteen different types of infections.

Fairley's[22] article on "Bilharziasis" is very interesting. He reports the demonstration of antibodies by the complement-fixation test and calls attention to the fact that B. mansoni were never found in the lungs and that pulmonary lesions are mainly limited to B. hematobia. Massive papillomatous formations of from 5 to 8 mm. are usually found in the bladder in B. hematobia infection.

Christopherson[23] maintains that antimony is a specific cure for bilharziasis. He bases his opinion on the results obtained during its use in the Khartorum Civil Hospital since May, 1917. He claims that it not only kills the adult bilharzia worms but later on affects the embryos in the ova in the tissues and thus prevents carriers resulting from acute infection. He again impresses the need of caution in administering the drug and suggests that less than 25 grains in all of antimony tartrate is sufficient amount to effect a cure. A marked improvement in the urine is noticeable usually after the fifth day, when only 3.5 grains have been injected. Eggs will not hatch after about 12 grains have been given. Suspected relapses are said to be due to the elimination of dead ova. The author combats vigorously the view that antimony tartrate given intravenously produces tachycardia.

There are several tropical diseases which might come under a miscellaneous heading, but most of the work done along these lines is purely experimental. However, McCarrison's[24] work on beriberi as a deficiency disease must be mentioned. The investigation is divided into three parts, (1) the effects of vitamine deficiency, (2) effect of diet too high in carbohydrates and deficient in vitamines, (3) the latter plus the influence of toxin or bacterial agencies. He concludes his article by giving eighteen general conclusions which show the thoroughness of the work and also the author's knowledge of his subject. McCarrison is quite of the opinion that diet plays a great rôle in beriberi but that in addition there are endocrine disturbances that mask the general clinical manifestations and produce variation in the types of disease. He states, for instance, that wet beriberi and dry beriberi are essentially the same, the former differing from the latter in that there exists a greater derangement of the adrenal glands. Another conclusion especially of marked interest to investigators of deficiency diseases is that infections and parasitic agencies may often be of great importance in determining the onset of symptoms.

We might continue and mention the various other interesting researches that have been carried on by numerous investigators, but since these are of interest mainly from an experimental standpoint, they will be omitted. Thus we hope that the profession can readily see that an interest in tropical medicine is of growing importance, and it is rather imperative that any member be able to meet these situations as they present themselves, despite the fact that they are infrequent.

20. Friedberger: Ztsch. f. Immunitatsf. u. exper. Therap., 1919, xxviii, 119.
21. Lucke: Mil. Surgeon, 1919, xliv, 620.
22. Fairley: Lancet, London, June, 1919, 1016.
23. Christopherson: Lancet, London, June, 1919, 1021.
24. McCarrison: Indian Med. Jour., 1919, vi, 275.

RETARDATION FROM HOOKWORM DISEASE

Examination tests among United States soldiers by the International Health Board demonstrated that many full grown soldiers who harbored comparatively few hookworms had the mentality of persons only twelve years of age. The mentality of 10,000 white men at Camp Travis who harbored the disease was about 33 per cent below normal.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M. OLMSTED, R. N., *Editor*

HEADS NATIONAL ORGANIZATION FOR PUBLIC HEALTH NURSING

MISS EDNA L. FOLEY was born in Hartford, Conn. She attended the public schools there, and was graduated from Smith College in 1901. Her training in the profession of nursing was received at the Hartford Hospital Training School, her course being completed in 1904; her first professional connection was in the position of head nurse in that institution.

MISS EDNA L. FOLEY, Chicago

Her training as a nurse was particularly auspicious, as it was received under the direction of Miss Charlotte Brown, whose fine personality exerted a strong formative influence in shaping Miss Foley's career. She then became head nurse in Child's Hospital, Albany, N. Y., and for one year she served as Night Supervisor, Children's Hospital, Boston, Massachusetts.

The next succeeding year and one-half as Tuberculosis Visiting Nurse in Boston brought her into close contact with Miss Elizabeth Upjohn, the first superintendent of tuberculosis nurses in Boston. Miss Upjohn embodied the best type of socialized nursing. Her death at the untimely age of thirty-five robbed the profession of one of its best representatives. This tuberculosis service in Boston, first organized by Miss Upjohn, was really pioneer work, as Boston was the third city in the United States to put on tuberculosis nurses.

In 1909 Miss Foley came to Chicago as Superintendent of Tuberculosis Nurses, and in 1912 she became Superintendent of the Visiting Nurses' Association. In the same year she was named as the First Vice-President of the National Organization of Public Health Nursing, with Miss Lillian Wald as President. She holds others posts identifying her with important work as follows: member of Executive Committee of the National Tuberculosis Association, and member of the Board of Directors of the American Child Hygiene Association. She served on the Tuberculosis Commission to Italy of the American Red Cross in 1919, and was a member of the Illinois Commission on Health Insurance.

Miss Foley especially urges the need for every woman in the United States to take the course provided by the American Red Cross in Home Nursing, for the responsibility for the care of the sick rests first with the family, then with the physician, and then with the nurse. On the other hand, she believes that the standard of registered graduate nurses should be made more uniform and not lowered.

The work in home nursing inaugurated by the American Red Cross is especially to be emphasized. It fol- especially to be emphasized. No nursing program can be considered complete that does not strive to attain intelligent cooperation in the home care of the sick. It follows that if the family remains ignorant of or indifferent to the needs of the patient, physician and nurse are alike helpless. No group of professional workers can hope to negate unfavorable conditions except through the inculcation of a greater respect for the scientific care of the sick by means of the education of the mothers in the fundamentals of home hygiene.

THE CALL FOR PUBLIC HEALTH NURSES

THE calls for public health nurses multiply in many directions. New activities are opening and the growth of old activities is keeping pace. The figures of the growth of public health nursing are impressive. In 1901 there were only 136 public health nurses. In 1919, a census showed more than 8,000. There are somewhat more than 10,000 in service today, and of these upwards of 1,500 are working as industrial nurses—an unknown specialty fifteen years ago. It may be conservatively estimated that fully 50,000 public health nurses will be needed to meet the demands within the next ten or fifteen years.

The *Health News* of the New York State Department of Health calls the present situation an emergency, and in a recent number they state the need as follows: "The constant calls for nurses, both for public health work and for bedside nursing, indicate that the demand for nurses is far in excess of the supply. Many excellent positions are going begging throughout the country owing to inability to find competent nurses to take these places, and the opportunities open to the nurse, especially to the public health nurse, are broader than ever before. If this demand is to be met, if public health nursing is to expand and develop as it must, there is an imperative need of recruiting more young women to study for the profession, and in this most important work health officers, health and

nursing organizations, and school teachers can render a service of the highest value to the community."

In the emergency the Department announces an opportunity by bringing the knowledge of the opportunities for service to the attention of prospective students. "If the opportunities open to the nursing profession were brought to the attention of the many young women who are shortly to graduate from the schools and colleges of the state, undoubtedly much would be accomplished. Ten-minute talks before the older students will probably do much good and, whenever practicable, may be supplemented by motion pictures which may be obtained without charge from the State Department of Health.

The pictures may be shown in the leading school of the community, if fitted with projection apparatus; or it may be possible to obtain the use of some hall, church, or perhaps a motion picture theater, to which all the older school girls should be invited." The Department specially recommends the film "An Equal Chance," prepared by the National Organization of Public Health Nursing as a means of arousing interest in the opportunities in the newer phases of the profession.

IRREDUCIBLE INFANT MORTALITY

It should first be mentioned that formerly the opinion was held that deaths under one month were 75 per cent irreducible—that is, it used to be thought that these deaths could not be helped, that the causes were beyond our control. Now we know better. We do not believe a word of the irreducible theory. The death-rate under one month where the baby's father is a doctor, a merchant, or an artist is below 25 per 1,000 births; and where the baby's father is a miner, a navvy, or a scavenger, the death-rate under one month is 45 per 1,000 births.

Again, the death rate under one month in Watford, England, is 19 per thousand births, but in Workington it is 45 per thousand births. . . . Consider this: The general infant mortality rate is 100 per thousand births; but the "illegitimate" infant mortality rate is 200 per thousand births.—Helen Macmurchy, M.D.

FLORENCE NIGHTINGALE: THE PIONEER OF PUBLIC HEALTH NURSING

By MISS V. KELWAY BAMBLER, Brooklyn, N. Y.

PROBABLY to no one person does Public Health Nursing owe so much as it does to Florence Nightingale, whose centenary we celebrated on May 12, and yet to most people the story of her great work in that direction is almost unknown. It is as the heroine of the Crimea, the gentle Lady of the Lamp, that she is remembered. But that was merely a picturesque incident in her career. Her most valuable and lasting work was accomplished in the long secluded years that followed, when the public was hardly aware of her existence.

To Florence Nightingale, the first Red Cross Nurse, born one hundred years ago, attaches the distinction of lifting the nursing out of drudgery and giving it the status of a profession. (Photograph by Kadel & Herbert, New York.)

Everyone knows the story of the early part of her life. Born of well-to-do parents, brought up to a life of luxury and ease, she was never content with the quiet self-centered existence which was the lot of most of her companions. She needed always to be doing something useful, always helping someone in distress. She seemed to have been born with the instinct which in later years was to make her the "noble type of good, heroic womanhood" which she became. As a little child in the nursery, when her sister cut up her dolls, Florence patiently collected the sawdust, stuffed them, and sewed them up again. As she grew older, it was her greatest pleasure to ride around her father's estate with the Vicar as he visited his sick parishioners. She would go into the cottages, carrying comforts and medicines to the ailing, doing what she could to alleviate their sufferings. But she soon realized that there was very little she could do for them unless she could acquire at least a rudimentary knowledge of the nature of their disease, and the proper way to treat them.

And so her family was suddenly electrified by a request for permission to enter Salisbury Hospital. Such a thing was unheard of. She might just as well have asked permission to become a chimney sweep. At that time nursing, such as it was, was looked on as a most degrading profession. The hospitals were full of the worst type of women, callous, immoral, addicted to drink, unable to carry out even the simplest medical instructions. It is not surprising that her family objected. There were tears and hysterics on the part of Mrs. Nightingale, and Florence was persuaded to give up the idea.

To all appearance she abandoned the plan, but, thwarted in her purpose, she studied in secret. Pamphlets, medical works, statistics—anything she could find on the subject she devoured. When the family moved to London for the season, she would slip away to work in the slums when-

ever she could escape from the social round of her set. When the family traveled on the Continent, she would seize the opportunity to study the health conditions and the care of the sick in the great capitals. While her mother and sister were visiting picture galleries, Florence was visiting hospitals. There was hardly an institution of the kind in Europe that she did not inspect and, on one occasion, when her family were taking the waters in Germany, she slipped into a hospital managed by some Lutheran Sisters of Mercy at Kaiserswerth and worked with them for three months. To the casual observer, she was still the beautiful society girl, enjoying her pleasant life; but underneath that exterior was the real woman, relentlessly pursuing her object. For twelve long years, little by little, bit by bit, she laboriously gained her experience.

Once she was almost turned from her purpose. Love came to her. But the dull specter of the married life of the Early Victorian woman rose before her—cramped, confined, and narrow. The man appealed to her strongly, but she realized that his mental outlook lacked the breadth of her own, and that marriage with him would involve the sacrifice of all her plans. She hesitated—she wavered—and then she made her decision. She could not give up her dreams of a life-time.

Long Deferred Hope Realized

For a long time it seemed as if never would she see the realization of those dreams and she went through a period of great misery, feeling that she was of no use in the world and that her whole life was being wasted. At last, however, when she was over thirty, her parents seem to have come to the conclusion that she was too old or too strong to be thwarted any longer, and she was allowed to take up the work she had craved. She became superintendent of a hospital for retired governnesses in London. Caring for a number of tired, worn out, discontented women seemed a poor task for one of her attainments, but she threw herself into it with zest, organizing and remodeling the institution till in a few months she had improved the place almost beyond recognition.

But a greater task was awaiting her. The Crimean War had broken out and the news of the terrible condition of the military hospitals in Scutari was beginning to filter through to England. The ravages of disease were causing more deaths than the cannon of the enemy. The medical organization had broken down completely and so desperate was the situation that it became evident the war itself would be lost if immediate help were not forthcoming. Here was Miss Nightingale's opportunity. It almost seemed as if Providence itself had been guiding her toward this moment. On the one hand was the great need, on the other the woman—mature, experienced, influential, free, fully prepared for the emergeney. She promptly wrote to her friend, Sydney Herbert at the War Office, offering her services. Sydney Herbert, from an intimate personal acquaintance, knew of her experience and was convinced of her capability, and it so happened that his letter asking for her assistance crossed hers in the post.

She wasted no time. Within a week she had collected a band of thirty-eight nurses and was starting for Constantinople. Before she left, she had made inquiries at the War Office as to stores and supplies and had been assured that nothing was needed. But she preferred to trust her own judgment. With the almost uncanny foresight which distinguished her throughout her life she provided large quantities of clothing, medical necessities, comforts for the sick, and even laundry equipment.

Her caution was fully justified. When she arrived at Scutari, she found a condition of filth, misery, and want beyond deseription. The Crimean officials, bound up as they were with military red tape and the still stronger bonds of a conservative conventionality, were not prepared to be helpful. She disregarded them. Quiet and unassuming, she started on her inspection. The story of what she found is almost too well known to bear repetition. A great, insanitary, ill-ventilated barrack had been

From this home Florence Nightingale went forth on her mission of "sweetness and light," visualizing a conception of nursing which has obtained until the present day and organizing what still must he considered perhaps the best possihle human service. (Photograph by Kadel & Herbert, New York.)

set aside for the wounded. It was entirely inadequate. There were no cots, no linen, no furniture, and not even the simplest medical necessities. The doctors were for the most part elderly and incompetent, and the younger men too few in number to cope with the avalanche of disease and distress which was pouring in. For four miles Miss Nightingale walked through the wards, where the men lay row after row, packed close together in a condition of indescribable filth and neglect. Think of it! Four miles of human suffering and misery. It was enough to make the stoutest heart quail at the immensity of the task, and all the while more and still more wounded were pouring in.

Relief Work Immediately Begun

Next day the work of reorganization was started. Carpenters and plumbers were brought in and while they opened out windows and repaired drains Miss Nightingale turned her attention to the kitchen and laundry. No clean linen was available for sick and the only food provided for her patients was the ill cooked and often nauseating army ration. From the stores which she had brought with her, in spite of the assurance that nothing was needed, she produced her laundry equipment, her jellies and comforts, and her clothing, and in a short time the men were receiving clean linen and well cooked food. There was still a great field to be covered, and she was terribly hampered by the slowness of the military mechanism. On one occasion, hundreds of wounded lay shivering for want of clothing, while thousands of shirts were kept locked up in the warehouse, waiting for a Board to give permission for them to be unpacked. It was not long before Miss Nightingale took things into her own hands, and the next time this happened she had the warehouse forcibly opened. The authorities raged, but she had Sydney Herbert and the Government behind her.

All day she worked indefatigably, administering and organizing her hospital. Most of the night she sat up, composing voluminous official reports, keeping statistics, writing letters to the relatives of the sick, and sending long and detailed accounts of her work to Sydney Herbert. Bitter and sarcastic accounts they were, picking out unerringly the faults and failings of those around her, the futility of the military organization, and the incompetence of its officials. When Dr. Hall, the chief medical authority, was given the K.C.B. she remarked caustically that she presumed that the letters stood for Knight of the Crimean Burial Grounds. With Dr. Hall, incompetent and obstructive, she had several encounters; but her natural shrewdness and the knowledge that behind her was the approval of the whole British public enabled her almost invariably to come off victor. The gentle, unassuming woman, the romantic "Lady of the Lamp," made a great appeal to the imagination. The quiet, capable woman, with the thin, curved nose and the small, determined mouth, knew her power and made use of it to the full to achieve her ends.

Her Influence in High Places

When her task in the Crimea was at last accomplished, and the time came for her to return to England, she received a most enthusiastic letter from the Queen, with an invitation to visit Balmoral. She went, and took the opportunity to lay before the Queen and the Prince Consort a detailed account of the defects she had found in the hospital system, and the reforms she considered necessary. As the woman who to all intents and purposes saved the war, who in a few short months had reduced the mortality from 420 per thousand to 22 per thousand, 42 per cent, she could speak with authority. "What a head," remarked the Queen. "I wish we had her at the War Office."

But if Miss Nightingale herself could not be at the War Office, she had an intimate friend there through whom she could work. Sydney Herbert was her devoted admirer, their mutual bond a great devotion to the public cause. Precluded by her sex, and by broken health, from taking any active part in public life, she determined to make the successful politician her mouthpiece. Her work in the Crimea she looked upon as a mere episode. Her great task still lay before her.

Worn out by the incessant strain of the last two years, she had returned to England almost at death's door. Rest was pronounced to be the only cure. But rest she would not. How could she, when there was so much to be done? And so, in hourly expectation of death, she worked on. Confined to her bed, almost in a state of collapse, she set out to reform the sanitation and hospital system of the army, and to organize a scheme of skilled nursing for the sick poor of the country. In the face of considerable opposition from the War Office, a wonderful improvement was made in the health conditions of the soldiers and gradually she was able to turn her attention more and more to the problem nearest her heart. As a young girl, she had seen in the London slums and on her father's estate in the country the sad plight of the sick poor, and the determination to better their condition had been before her from the beginning of her career.

The outlook was not encouraging and many people believed that it was a waste of time and energy to attempt any healing work in the dirty and insanitary homes of the great cities. Miss Nightingale thought otherwise, and presently there came an opportunity to make her first experiment in this direction. At this time the only nursing available for the sick poor was in the workhouses, where the attendants were paupers themselves, dirty, callous, and untrained, and where the general misery and neglect were beyond description. Mr. William Rathbone, a Quaker of Liverpool, wished to devise some scheme for the improvement of this state of things, and wrote to Miss Nightingale for her advice. At her suggestion he built a Training School for Nurses who should replace the old Infirmary attendants and eventually extend their care into the homes of the sick. From the Nightingale School for Nurses which she had founded at St. Thomas' Hospital, she provided a superintendent for the Infirmary and twelve nurses. Against a mountain of disease and disorder these pioneers worked patiently and courageously and, so great was the success of this first experiment in public health work, that Miss Nightingale was encouraged to work for the same reform in London. It needed hours of planning and organizing from her sick room, and it was not till 1867 that she was able to get a better system introduced into the London workhouses.

District nursing prospered beyond the most sanguine expectations and a great impetus was given to it in 1887, when Queen Victoria presented £70,000 of the Women's Jubilee Offering to the Association. But to the end of her life Miss Nightingale was working for the perfecting of this long planned scheme, reorganizing the methods of work, drawing up requirements of training, and urging the necessity of keeping statistical records. In fact, not a single detail did she overlook. Before her death in February, 1910, public health nursing was firmly established. It remains for us to see that the Lamp she lighted burns ever more brightly, till there is not a corner in the darkest home in the country into which its rays do not penetrate with their healing influence.

HELIOTHERAPY, open air schools for the pre-tuberculous, and manual training for the feeble-minded are here shown as typical parts of child welfare work in old Italy. Stazione Elisterapica, Genoa, located on the beach, is sheltered from the north winds and has an exposure which gives it a temperature from two to four degrees above that on the street which is on a level with the roof of the house. The children are shown at lunch, and on the terrace undergoing the sun-cure.

The Open Air School on the strand holds its winter sessions in this public seabath hous. The Asilo, or Open Air School at Genoa, is a home provided for the well children of tuberculous parents by the Genoese Anti-Tuberculous Association. Similar homes are maintained for children who have been infected.

The manual training class is from the "Senola Antonoma" for deficient and backward children, Genoa. *(Pictures supplied by Miss Edna L. Foley, Chicago, during her service in Italy on the Tuberculosis Commission of the American Red Cross.*

WISCONSIN WELFARE WORKERS ASSOCIATION *

By MISS MARY LA RUE, Chairman, Committee on Home Visiting, Milwaukee, Wis.

IN the estimation of your Committee, nothing seems more fundamental for the happiness and well being of the industrial workers than a feeling of contentment and happiness which finds its origin in a friendly exchange of ideas between employer and employee. In this connection the home visitor has become an important factor in modern industry. It has been demonstrated that activities along lines of health and comfort, when properly directed, not only reduce accidents and illness and raise the standard of living, but also give direct results in increased efficiency and production of work in the factory.

Service Not a Charity

Home visiting of a patronizing nature never yields satisfactory results. It must be whole hearted and, above all, it must encourage the independence of the employee. Any feeling that the people visited are receiving charity naturally would be resented. Corporations should realize this work is merely additional factory output and that the money expended is a profitable investment.

The obligation of industry is not covered by the mere payment of wages and direction of works. It uses up human life and it is therefore under moral obligation to protect what it cannot use in the individual worker's life after extracting the serviceable and leaving only waste. Home visiting can be made a recognition of this fact and is an endeavor to remedy this defect of modern industrial life. Many industries have done much; much more remains to be done. The majority of the great industries are studying and experimenting with possibilities to ascertain and follow the best methods of bettering the conditions of their employees.

The scope of work in the home is almost unlimited, being determined by the desires of the firm and the kind of a home visitor employed. To a large extent the firm decides what line of work will be done, but, without creating opposition, a tactful and earnest worker can enlarge on work laid out, and many times can make his or her work invaluable in this way both to employee and employer.

Entrance into the home is gained through illness or accident, because of domestic or financial trouble, or through the absence of employee without notice. Requests for these calls are received direct from the employee himself, from his foreman, or some fellow worker to whom he has confided his troubles and who wishes to help him out.

A Get Together Policy

The aim should be to see that the employee gets a square deal and to assist him and his family during times of misfortune or illness. A tactful visitor having common sense and the ability to get in touch with people, becomes a connecting link between the man's work and his home, is able to make him feel that his employer is really interested in his welfare, and at all times has her finger on the pulse of situations in factory. Shop affairs are discussed in almost every working man's home, and getting their views gives a good insight into attitude of workers.

By discussing with the foreman unsatisfactory factory conditions complained of, such conditions can very often be remedied and a source of discontent removed. By gaining confidence, the home visitor usually has very little trouble in overcoming opposition to proper medical attention, needed operations and improvement in housing conditions when necessary. As far as possible, the visitor should endeavor to teach the family to help itself, which in many cases can be accomplished by the extension of a small loan without interest. In periods of distress, when the head of the family is out of work because of accident or illness and the funds have become exhausted, it sometimes becomes necessary to extend financial assistance not in the form of a loan. In such cases the home visitor should have the authority to promise definite financial assistance within certain limits. To be effective, such aid should be prompt, and by her ability to announce a definite cash contribution a great deal of the worry of the family would be promptly removed. Such acts of mercy will do more toward achieving an adjustment of a crisis in labor relations than the application of any scientific method.

A home visitor's knowledge of existing agencies, free dispensaries, hospitals, convalescent homes, and relief societies, and her ability to secure more considerate rates for dental work or much needed medical or surgical treatment, are of immense value in her work.

It often becomes necessary for a visitor to make suggestions on topics of public health, to offer possible solutions for domestic troubles, as well as to be able to discuss various topics which might enter into the home life, which prove to be invaluable in assisting the family. A knowledge of housing conditions is very important in order to be able to advise the family in regard to such possible insanitary conditions as damp basements, lack of sufficient light, or the inability to obtain sufficient ventilation, particularly in the bed rooms. By getting a family out of an insanitary home and into more hygienic quarters an improvement in the health of the family usually becomes immediately noticeable. The home visitor should be able to impress on the mother of the family, for instance, that ventilation and cleanliness cost little or nothing, that flies in the summer are unnecessary, and huddling together at night of large numbers of people, especially children, is hurtful.

Achieve Better Relations

Working with foremen and others in authority instead of antagonizing them, using influence rather than authority in gaining a point, will help to create a better feeling and remove much of the opposition to social work. In this way it is easy to secure suitable employment for a man returning to work after a serious operation or illness or, in cases where necessary, an entire change of employment.

While records of family conditions and visits are a necessity, it is not at all desirable to try to get complete information during the first visits; in fact it is preferable to get the information without the family realizing that any record is being made of the data secured. In order not to offend them no notes should be taken during the visits, but the home visitor should practise remembering the data secured, setting them down after leaving the house or on reaching the office.

Likewise, no attempt should be made to teach the family at the first visit all the points which the home condition

*Report to the Wisconsin Welfare Association by the Committee on Home Nursing, made under date of March 1, 1920.

might suggest; but, rather, attention should be centered on one or two of the most important points and the rest be left for subsequent calls.

The success of the work of the home visitor will largely depend on the manner in which she makes her first entrance into a home. No definite rules can be laid down. Circumstances and conditions must dictate to the tactful worker the proper approach to make. Intimate knowledge of home conditions often brings the visitor in touch with situations which would not for many months be recognized as abnormal by others.

The power to sow the seeds of discontent and unrest is just as potent as is the power to distribute a spirit of loyalty and appreciation and greatly strengthen the bond between employer and employee. The visiting welfare worker is in position to explain and obliterate misunderstandings and ill feeling arising between foremen and workers, and through courteous tactfulness remove the personal animosity and jealousy which all too often prove a cause for an increasing turnover and absence from work. She will proceed slowly at first and in visiting families must not allow zeal to carry her along too fast, but must try to add to her social attitude of mind an outlook on the business aspect of the various situations. There should be no sentimentality or one-sided point of view about work. Nothing is more important than the value placed upon her work by the employees themselves.

In plants where a messenger is not employed, the visitor often receives a daily list of absentees on whom a routine call of inquiry is made to find out the cause of absence. It rests with her to make these visits agreeable and to avoid all appearance of having been sent to spy on the employee, not a difficult matter unless she is signally lacking in tact.

The Agent of Service

Home visiting is usually carried out by one of the following: visiting nurse, service worker—man or woman,—or a visiting housekeeper, supplemented by messenger service. In some plants several of these different types of workers are employed, the combination of visiting nurse and messenger service being the most frequent. In some of the smaller shops it is not unusual for the visiting nurse to spend several hours in the morning supervising the first aid room, and the rest of the day in making calls. In larger plants she is relieved entirely of any connection with the shop hospital or the first aid room. Where a number of smaller plants are located in close proximity to one another, one visiting nurse can easily manage to supervise the first aid work and do the visiting work of the plants as well.

A great deal of comfort and happiness is created by the visitor on calling on the sick people, either in the hospital or in the home. The distribution of carefully selected plants, flowers, or magazines is a wonderful means of shortening the otherwise tedious hours for a patient recovering from serious illness. A few thoughtful acts along this line on the part of the visiting nurse will always be gratefully remembered.

In some plants a visiting housekeeper has been employed to supplement the work of the visiting nurse. It is her duty in cases of serious illness, particularly in the case of the mother of a family, to spend part or all of the day in doing the work which the mother is unable to do because of her illness. In other words, she takes complete charge of the housework, thereby enabling the employee to return to his work, his mind at ease, knowing that the family is well taken care of and that he is earning his usual wage. This effects a decided gain for the employer on account of averting the necessity of securing another man for the position, or having a machine idle. Such a housekeeper, properly trained, has abundant opportunity to teach the family the best methods of preparing wholesome dishes for the children and proper methods of hygiene and sanitation. Much more can be accomplished along these lines than by an occasional visit.

Qualifications of a Home Visitor

Regarding the qualifications of the visiting welfare worker, your Committee believes that only those should serve in such a capacity who have a thorough educational preparation; who have an intelligent understanding of social customs and conditions among the working class; if possible, those who can master one or more languages spoken by foreigners; and who not only are thoroughly familiar with American ideals, but also know how to preach and apply them.

Pleasing personality, good health, and endurance are essential, as are sound judgment and tact, and ability to use discretion on all occasions. She should be full of human sympathy, be able to see the humorous side of life and to view situations from an unbiased standpoint. She should have a thorough knowledge of the policy of the company and ability to convince the employee of its fairness, and that he has a really good place to work. She must be able to convince them that she is their friend and that they can tell her in confidence whatever troubles they may have on their minds. Because of the importance of properly impressing a family, a visiting nurse should always be a graduate nurse. The home visitor may be a practical nurse, although not necessarily so. The visiting housekeeper preferably should be a practical nurse as well as a good housekeeper.

Before working alone as industrial visiting nurse or as a service worker, such a person should receive definite training in industrial service with a worker who has a thorough understanding of plant conditions, thus avoiding possible damage because of lack of proper knowledge of the fundamentals which she has to deal with in visiting the homes.

To Whom Responsible

In order that the work may be of real value, it is exceedingly important to decide the question as to whom the home visitor should be responsible. Responsibility of reporting should not be to a foreman or superintendent, but to some higher official of the company, unless the plant has a well organized welfare department with a manager in charge. In the work of the visiting nurse or home visitor so many questions come up that have to be settled and settled quickly, questions that frequently involve financial outlay either in direct allowances or in the form of a loan, questions of assuming medical or hospital bills, that a quick decision is necessary in order that the work of the home visitor may be most effective.

A definite and rather fixed policy should be adopted for her guidance, in order that she may know just how far she may go in making a definite promise or, at least, in suggesting what she is willing to call to the attention of the firm for their action and attention. Any promise made on her part and not backed up by the corporation will have a decidedly detrimental effect. The home visitor is frequently asked for advice and suggestions in regard to family and legal matters and she should have someone whom she may call on for legal information in order to inform the family what their rights are and what is the best course to pursue.

While there are such agencies as the Legal Aid Asso-

ciation and similar bodies which aim to deal with the unfortunate in distress, any employee of an industrial plant should never be forced to call on agencies whose work might readily be considered as charity. Any work of this nature ought by all means to be rendered by the employer, thereby helping to maintain the employee's self-respect, because the employee considers that whatever is done along lines of this nature by the employer is due to his interest in him and something to which he may justly have a right to expect attention.

In summing up, no visiting nurse or home visitor should be engaged and started out until the person to whom directly responsible has been settled, in order that there may be no shifting of authority, which is bound to have a bad effect on her.

Records are Important

The importance of records must not be overlooked, but, on the other hand, they must not be over-emphasized. While it is important to have complete record, it is just as important to realize what is essential and what is not, thereby avoiding confusing the records with information that can have no possible future value. Records of family conditions must be considered absolutely confidential and only available for those persons who have a right to the information. While the record cards should provide spaces for complete information, not alone in regard to housing and living conditions and conditions of the home, but also about the members of the family and their condition from a health standpoint, such stress must not be laid on the records and the collecting of facts that the real work of the visitor is neglected in order to fill up the card with information. In entering visits on the cards, facts and not emotions should be the guide.

In closing, will quote from Miss Edna L. Foley's admirable article in *The Modern Hospital*, August, 1916, on "The Visiting Nurse in Industry":

Too often an industrial visiting nurse is but a well trained, well intentioned woman with no special preparation for an important piece of sociological endeavor. Such a nurse can do good work, but she can rarely do the big constructive piece of honest welfare work desired by most employers. The position of visiting nurse for any firm should be one of dignity as well as of responsibility. No nurse should be engaged because her knowledge of illness and minor accidents may enable the firm to dispense with the services of a paid physician, for a nurse is not trained or licensed to practise medicine, neither should she be engaged to follow up absent employees who are suspected of malingering. Nor can she do the best work for employees if she spends the better part of her working day in a little dispensary waiting for accident cases. A comprehensive plan of good industrial visiting nursing includes a staff of nurses large enough to enable the firm to have a nurse on hand for emergencies, and other nurses for home calls.'

For further information along this line we would recommend the following magazines and books:

Magazines.—The American Public Health Journal, The Modern Hospital, Modern Industry, MODERN MEDICINE and the various nursing journals.

Books.—Personnel and Medical Audit, by F. E. Weekly; Relations of Home Conditions to Industrial Efficiency, by M. B. Gilson; Welfare of Factory Workers, by A. Shadwell; Welfare Work, by L. Amy; and Work and Service of the Factory Nurse in Manufacturing Plants, by N. C. Rudd.

RESTRICTIONS ON NARCOTICS

Osteopaths in Minnesota may no longer issue prescriptions for narcotic drugs in that state, this being in accordance with a recent ruling by the attorney general.

PROBLEMS OF NURSING EDUCATION

The American Conference on Hospital Service, which met in Chicago on March 3, appointed a Committee on Nursing. The members of this Committee made a resolution to study the nursing problem as it exists today, both in the United States and Canada.

If you are interested in nursing problems, will you answer the following questions and mail your reply to Miss Elnora Thomson, School of Civics and Philanthropy, 2559 South Michigan Avenue, Chicago, Ill.? Miss Thomson is a member of the Committee, and is desirous of securing data from various sources on which to base a study of the problems before the next meeting of the Conference, which is to be held in Montreal, on October 4, 1920.

(1) What is your opinion of the three-year course for nurses connected with hospitals? The two-year course? The high school pre-nursing courses? The Red Cross extension courses? Short courses and correspondence courses?

(2) Are the principles laid down in the nursing education in these courses right or wrong? If right, how can it be improved so as to adequately meet the nursing need? If wrong, how should the training of the nurses be made right?

(3) What use are the graduates of these various schools making of this training?

(4) What misuse are the graduates of these schools making of their training?

(5) What, if any, is the nurse wastage during training?

(6) What, if any, is the nurse wastage after finishing their course?

(7) What are some of the reasons for the shortage of nurses today?

(8) What suggestions can be made as to changes in the training to make it efficient and not lower the nursing standards?

HEALTH LECTURES FOR TRAINING SCHOOLS

The Joint National Committee of the American Nurses Association, National League of Nursing Education, National Organization for Public Health Nursing, and the American Red Cross has prepared and is offering a series of lectures on public health nursing to be read to student nurses by an authorized public health nurse reader, who can answer questions on the subject. The series covers the following subjects: (1) Achievements and opportunities in the field of public health nursing. (2) Visiting bedside nursing: industrial nursing. (3) Prenatal, maternity, infant and child welfare nursing: conferences. (4) Tuberculosis nursing and the nurse in the venereal clinic. (5) Medical social service and medical hygiene. (6) The public health nurse in relation to community development.

These lectures can be secured by application to the National Headquarters at 156 Fifth Avenue, New York City, or the Central Branch Office, Room 904, 116 South Michigan Avenue, Chicago, of the National Organization for Public Health Nursing. The lectures have been prepared by experts in the various public health nursing branches in response to a demand for such material from the superintendents of training schools. It is the desire of the Joint Committee to keep the lecture material absolutely up to date. They, therefore, have numbered each of the offices after they have been read to these special groups of students.

The interest in public health nursing should result in more women entering the special courses which have been organized for the training of public health nurses.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

BOGUS PROPAGANDA

THE New York State League of Women Voters has signalized its entrance into the field of public action by a notable report and protest made to the governor, the legislature, and the people of the state of New York. The League has been for some time backing certain welfare legislation, including the minimum wage for women, the eight-hour day for women, and workmen's health insurance. These projects had been blocked in the legislature and they instituted a careful investigation to find out the reasons.

"We have found," they said, "that there exists in New York state a dangerous subversion not only of legislative opinion, but of public opinion as well. We have found a condition by virtue of which it is evident that it has been made exceedingly difficult for any constructive social or industrial measure to get adequate and unbiased consideration before either the public or the legislative opinion of the state, and we have found that the influences at work, so far from being invisible, are flagrantly and cynically open and are rapidly becoming notorious."

The direct attack of the League was made upon the Associated Manufacturers and Merchants Organization and their subsidiary organization, the so-called New York League for Americanism. The pamphlet which has been issued by the League is well worth study and consideration by every person interested in the honest workings of democracy. It shows the power of propaganda in the hands of special interests backed by ample finance. It shows the relationship between certain commercial insurance interests and the opposition to welfare legislation.

As illustrative of the methods pursued, the report goes on to state regarding the propaganda of the so-called League for Americanism: "It has misstated the effect and methods of operation of proposed industrial legislation. It has grossly exaggerated the cost. It has sought to lead industrial workers into believing that such measures would deprive them of their individual rights.

"It has misled physicians and prevailed upon them to organize under the auspices of the 'League' into so-called 'Professional Guilds' by creating the impression that professional fees under the proposed workmen's cooperative illness insurance measure would be reduced as low as fifty, twenty-five, and even six cents; whereas it should be well known that the bill provides that professional fees shall be on a basis initiated by the various county medical societies.

"The 'League' has associated itself with and brought into the scheme of operation individuals who have been given to the most inflammatory and unfounded statements and innuendos. In the form of so-called 'boiler plate' it has repeatedly sent to the numerous daily and weekly up-state newspapers propagandist material as false and misleading as any that could be devised.

"The 'League' has gained circulation for such statements not only through the press but through paid orators, and has shown singular energy in hiring speakers to attack proposed industrial legislation on the basis of the League's own tricky assertions. It has particularly sought to create the impression that such legislation is of pro-German and Bolshevik origin."

The medical profession and public spirited citizens generally throughout the country will read this report with keen interest. There is not lacking evidence that the same propaganda is nation-wide. Beginnings have been made in a number of states where welfare legislation has been advanced to organize the same type of propaganda under more or less thinly veiled disguises. With paid workers and ingenious publicity bureaus, this propaganda approaches a national menace.

TRENDS IN THE DEVELOPMENT OF SCIENTIFIC MEDICINE*

By FRANCIS MARION POTTENGER, A.M., M.D., LL.D., Monrovia, Cal.

The ultra-refinement of laboratory method has led to illogical specialization which has caused an unfortunate abstraction on the part of the physician and a defection on the part of the patient to various cults which place the greater emphasis on the personal equation.

In the final reorganization of medicine socialization with its tendency to disorganization, and group medicine with its effort to overcome the weakness of specialism, will be looked upon as steps in the development of a modern clinical medicine in which the whole will assume its proper relationship with its parts, will assure more efficient service.

THE office of president is the highest honor that any organization has to confer upon its members. The presidency of the Mississippi Valley Medical Association, however, is a special honor, because of the fact that it is one of the largest and best general medical societies in the United States, and because of the character and achievements of its members. To say that I thank you for conferring this honor upon me, but feebly expresses the gratitude which fills my heart. It is an honor to be associated with the people of this great Mississippi Valley because they partake in thought and ideals of its own bigness and vastness. This liberal spirit you have shown in going to the far West to confer the presidency upon me. I have always endeavored to give this society my best effort; and now as I become one of your ex-presidents I hope I may continue to be a faithful worker for the good of the organization.

The Altruism of the Profession

The two years which it has been my privilege to serve as president have been years of unusual sacrifice on the part of the members of our profession. Never has greater unselfishness been shown by any group of men. Many of our own members, along with physicians from all sections of our country, left their homes, and practices which they had acquired after years of work and struggle, and gave their time and knowledge to the cause of their country without regard to personal consequences. Never could a man say with greater truth that he is proud to be a physician than now after seeing the worthy sacrifice made and efficient service rendered by the members of our profession during the world war.

Medical science put the most efficient armies into the field that were ever massed for combat. While the scientific agencies of destruction were all concentrated for killing men, the scientific agencies for preservation and reconstruction were also thoroughly organized for saving life. While more men were killed in combat than in previous wars, fewer died of disease and of wounds. The medical profession emerges from this war with the honor of having been able to amass millions of men together under most unfavorable conditions and still keep the rate of illness among them below what it was for the same group of men in civil life. And now that the war is over our profession is still putting forth its best efforts for the reconstruction of those who were disabled.

Our profession which acquitted itself so nobly during the months of training and combat is now again adjusting itself to civil life and applying itself to the solution of the new questions which result from the overturning of the old order. It has been eminently successful in maintaining the efficiency of the uninjured soldier and in reconstructing those who were injured. May it be equally successful in increasing its own efficiency and in reconstructing itself to meet the demands which are to be made upon it by the new regime which is being established.

A Fourfold Service

Medicine is able to perform four great services for mankind; services which largely influence the lives and determine the happiness of the people: (1) the prevention of disease; (2) the cure of disease; (3) the relief of symptoms and suffering; and (4) the increasing of the efficiency of those who are subnormal. The prevention of disease is desirable for everybody; consequently there are one hundred million people in the United States whom this interests. It is estimated that the total acute illness of the United States alone is equivalent to ten days illness per person annually. A great deal of this as well as much of the chronic illness is accompanied by troublesome

*President's Address; read before the Forty-fourth Annual Meeting of the Mississippi Valley Medical Association, at Louisville, Ky., October 21, 22, and 23, 1919.

symptoms and suffering. Therefore a large percentage of the population is interested in the cure of disease and the relief of symptoms. The selective draft as well as inspection of school children and factory and shop employees has revealed a tremendous amount of unfitness among children and the young adult population. Many of these conditions may be remedied wholly, others in part; so there is an enormous demand made upon the profession to increase the efficiency of the unfit.

It would seem, then, that the opportunities for rendering service, and the demands made upon the medical profession are almost limitless. A profession which shows itself capable of rendering such service to the human race should hold not only an important but an intimate and confidential place in the hearts and estimation of the people. But let us inquire, does it hold the position of power and honor that is warranted by the service which it is able to render?

The Family Physician Passing

If we critically analyze the situation, we find that the medical profession has temporarily lost some of its former prestige. We further find that it began to lose prestige coincident with the great discoveries which increased its efficiency and made it capable of rendering better service. This was the era which marked the passing of the old family physician. It was the time when mysticism gave way to scientific fact; when the interest in the patient who had the disease was transferred to the disease which had the patient. The family physician, the counselor and friend in time of sickness and trouble, the advisor when new enterprises were contemplated, gave way to a new order in which the doctor became a student of scientific medicine, a student of tissues, germs, secretions, and excretions rather than a student of human beings and human nature. The practice of medicine became more scientific, but less personal.

The public noticed with regret that the interested counselor and family friend was passing, and the new medicine failed to convince the people that the new practice based on greater knowledge is better than the old. So medicine relinquished that intimate hold on the people, which it had always possessed, and the people began searching for something to take its place.

During this period of transition, many cults and isms sprang up, each attempting to supply that which the medical profession had abandoned. New Thought, Christian Science, Osteopathy, and Naturopathy are a few cults that might be mentioned.

Each one of these cults has something that the people want; otherwise it would not exist. Some have very little and they soon pass away. Not one of them possesses anything that medicine does not have; in fact, they are all limited in the service that they can render; yet, in spite of this limitation, they have gained a certain recognition and in some quarters a large following, largely because of a failure on the part of the public to appreciate the value of scientific medicine. An analysis of one and all of these pathies shows one common characteristic which makes for their success—they all emphasize a personal rather than a scientific interest, an attempt to help the patient rather than to attack the disease. The personal attention, the patient likes. Not appreciating the modern scientific facts regarding disease, it is but natural that these cults should underrate its importance. Their attitude is much the same as that of the old physicians in prescientific days. The mental healer and the Christian scientist see only the mental side of the patient and treat him as an individual with disturbed lines of thought. If they are able to secure his confidence they help him to just the extent that he can be helped by relieving a bad mental attitude. In some instances this is much; in others little. The osteopath massages and makes some patients feel better. The naturopath prescribes simple measures and regulates the patient's life, and thus helps a certain number. The success of these narrow cults should show scientific medicine wherein it is lacking; for their success depends, one and all, upon their interest in the patient. Medicine should again become more personal. This it can do without becoming less scientific, and to the advantage of the patient as well as the profession.

There is no use in our denying that each cult is capable of doing some good in its narrow way. But why should any cult so narrow in conception as to ignore the vast fund of accumulated scientific knowledge, exist and receive recognition? There is but one answer. It satisfies a demand. Medicine can fulfill all the requirements that are met by Christian scientist, mental healer, osteopath, or what not, and do it in a scientific way. It has the knowledge of the disease and the knowledge of the patient, and it should combine them in such a spirit of broad-mindedness as to meet the requirements of the people. Will this be done?

The Prevention of Disease

Of the four great services that the medical profession is able to render to the public, the prevention of disease is the greatest. This stands out as

the highest ideal to be attained by medicine. While it means the most for the human race, the race as a whole manifests little interest in this phase of the subject, and we have the double paradox of the medical profession finding its greatest interest in the one service which it is capable of rendering which will eventually curtail its earning power; and of the public finding the least interest in the one service which concerns it most and which offers it the greatest aid and security.

How can the medical profession secure the interest and cooperation of the public in the prevention of disease? This is one of the most difficult problems before it. Now that it has acquired by years of patient research the knowledge which, if applied, will materially lessen disease the profession is greatly hampered in its application by a public, apathetic, and apparently unwilling to receive such benefits. Why this attitude and how can it be overcome? It is largely due to a failure on the part of the public to grasp what preventive medicine means, and a suspicion on its part of the disinterestedness of the profession in advocating it. It can be overcome only by securing the confidence of the people and making them appreciate that preventive medicine is for them, and not for the profession. The profession of medicine has become too much medical. It has held itself aloof from things social, industrial, and political with the result that it is not able to make the power of modern medicine stand for what it is worth.

Unless medicine is able to impress its worth upon each generation through which it passes it is falling short of its duty. If the public only understood the success that would attend applying scientific measures to the prevention of disease it would compel the government to institute the necessary machinery without delay. There would be a Department of Health in the President's Cabinet, whose function it would be to guard the health of human beings and see that all known preventive measures were put into practical application; and it would not be established at the suggestion of the medical profession against the will of an opposing public. It would be established by a demanding public, and its efficiency would be guaranteed by the fact that it would have the support of those who benefit by it.

There is a suspicion on the part of the public that anything that the medical profession advocates must have self interest as its basis. This suspicion is but natural in this materialistic age, in which the wits of one group enables it to live off of another group; and, in the final analysis, this suspicion of self interest is based on fact; but it is self-interest in an unselfish ideal. The interest of the medical profession in preventive medicine is, aside from the desire to prevent suffering and death, the interest of a parent in its own child; for preventive medicine is the logical offspring of years and years of scientific labor.

Too much energy has been expended in talking to doctors about the benefits derived from the prevention of disease. They are already convinced. It is the lay audience that needs to understand and which should be reached. This will never be attained through addresses before medical societies or through scientific articles in professional journals, but only by methods which will reach the people and acquaint them with the facts of preventive medicine and arouse within them the desire to attain its benefits.

Increasing Human Efficiency

Along with the prevention of disease we must consider another great altruistic service which medicine is capable of rendering to the public. I refer to the increasing of human efficiency by improving the working power of the human machine.

The importance of this phase of medicine has been partly appreciated for years. It has been carried out, though imperfectly, and often half-heartedly, through examination of school children and factory employees. It has shown a high percentage of subnormal children and workers; but no one was ready to believe the extent to which inefficiency exists as revealed by our recent draft examinations. While statistics of school inspection show that from 50 to 75 per cent of school children suffer from some remediable defect, often only trivial in nature, the draft examination showed that 50 per cent of the young men in America who were within the draft age were unable to stand military service. While a large proportion of this 50 per cent may be perfectly able to fill positions in civil life, yet it should cause us to make a careful survey and see if the efficiency of these young men can not be increased. The one important fact with reference to the young men of draft age, as well as those who show defects while of school age, is that many of the defects are remediable. Some can be wholly relieved; others can be partially relieved; but there is no doubt that, if a concerted effort were put forth, the inefficiency found among the people could be greatly decreased.

Physical defects lead to wrong habits of living; and are often, in fact we might say usually, accompanied by faulty education. So the subnormal individual becomes a subnormal, physically, nervously, and psychically. The course often runs

the other way, too. Bad habits of living lead to physical defects, and nervous and psychical unbalance. In attacking this problem, medicine shows itself in its broadest aspect and applies its scientific knowledge to social and economic requirements. It is not only physical defects that are to be remedied, but nervous and psychical as well. Medicine alone can furnish the basis for understanding the whole question of man's adjustment to man and society as a whole.

There are in the United States about twenty million children in the public and private schools. Think what it would mean for the future efficiency of the race if the remediable physical defects alone of these children were corrected. It is little short of criminal to allow these children to go on without proper care. If it were due to active opposition such as that offered by those who do not recognize defects and disease, it would be; but since the fact that they are not cared for is rather due to a lack of knowledge on the part of the public, it must be excused until the necessity is appreciated. The seriousness of the offense against the growing youth, however, must be impressed upon the public in such a way that it will see, and understand, and demand that these defects be relieved.

A Test for the Socially Minded

There seems to be a gradual awakening in interest in those phases of medicine which are of a social and industrial nature; and it is probable that this interest will receive fresh impetus after our recent war experiences. Industrial and state medicine are likely to be questions of absorbing interest to our profession in the immediate future. Such movements will necessitate some change in our ideas as a profession, and may test our willingness to subordinate what seems to be the best interest of the profession to what seems to be the best interest of the state. Such movements are steps in progress and must be considered from a broad-minded, humanitarian standpoint. The profession owes it to itself as well as to the public to face such questions fairly and squarely, not in the way of self-interest, but from the standpoint of progress and the common good. Progress is made by encroaching on supposedly established rights and, while each encroachment may be temporarily set aside, yet if it is necessary to progress it will finally be established. These questions can not be settled except by taking into consideration the broadest relationships of medicine to the state.

Prior to the development of modern medicine, the relief of suffering and the cure of the patient were the chief concerns of medicine. The physician was consulted to relieve some distressing symptom or because of the faith in his power to cure a disease process. While the prevention of disease and the relief of inefficiency will demand more and more of the profession's attention in the future, as long as disease exists and as long as human beings suffer, the profession will be called upon to aid in the cure of curable ills, and to relieve pain and other distressing symptoms. Therefore, while this part of our work may not be as idealistic as the other, it is no less important. It, too, is humanitarian and thoroughly practical, and demands the best efforts of our profession.

In order to render our best service to the public we should acquaint ourselves with both the disease and the patient.

It is within the life and memory of the members of this Association that modern medicine has developed, yes, more than that—many of our members have had an active and important part in its development. The cheerful presence and the mystifying look of wisdom which characterized the old practitioner has given way to an ever present consciousness of one's lack of knowledge, which has unavoidably resulted from the rapid growth and development of modern medicine. The kaleidoscopic changes made necessary by the rapid discovery of new facts have surrounded modern medicine with an air of inexactness and imbued the profession with a lack of faith in itself. Each year has seen so many idols shattered, so many principles on which former medicine was based proved false, so many facts revealed, and evidence of so many more which are still unknown, that the profession has been compelled to stand aghast and wonder how long it would be until the human mind would be unable to comprehend medicine. Strange to say, however, there is finally coming out of all this mass of new knowledge and separate and distinct facts, a sense of unity which will, when worked out, simplify medicine.

The older medicine was a one-sided medicine. It dealt largely with observations which were made upon the patient. The knowledge of the disease was comparatively meager except in the manner in which it manifested itself clinically. The medicine which displaced it was also one-sided. It was natural that methods would go to the other extreme. With the development of microscopic pathology, bacteriology, and biochemistry the interest was shifted from the man to the bacteria which infected him and the manner in which his tissues changed under the influence of disease processes. The interest was shifted from the human being to the laboratory.

This laboratory era in medicine has been characterized by intensive study in limited fields of

specialization, and has resulted in a rapid systematization of discovered facts. Men have devoted months, years, even many years, to the study of single systems of the body, single organs, or single problems. This has resulted in the discovery of many independent facts which have enriched the knowledge of the subject under investigation. The segregation of these facts has resulted in building up many independent specialties.

This is where medicine finds itself today. While there is still much to discover, the fundamental branches for the most part are fairly well understood. A sufficient number of the fundamental facts of anatomy, pathology, bacteriology, serology, biochemistry, and physiology are established on a secure foundation to afford a safe working basis. The body has been divided up into many parts, and the diseases which affect each part have been constituted the subject of special study by men who are known as specialists in that line; even methods of examination have constituted specialties. This specialization has been carried to such extremes that some one has facetiously remarked that the only structure left to internal medicine is the umbilicus; and another suggests that we may expect to see rhinology divided so as to have specialists for the right nostril. But is specialization the end to be desired? Has our study been broadly directed? Can medicine render the best service to the public on this basis? Assuredly it can not. Medicine is becoming divided into illogical specialties. There is a chasm between the specialties and general medicine and between the physician and the patient. He has been studying his specialty so earnestly that he has often failed to realize its relationship to medicine as a whole, and has centered his thoughts on the disease and disease processes with such earnestness that he has failed to give due attention to the patient.

Laboratory versus Clinical Methods

The medicine which is dawning today will correct this evil. Clinical observation will once more be encouraged and prized. A clinical observation which recognizes a clinical reaction and shows the manner in which a disease process produces it is equal in value to the reaction shown by the microscope and in the test tube; and will be so recognized. In order to make progress in the study of the individual, the same preparedness for study and the same earnestness must be shown and the same desire for truth be manifested as has characterized the work of laboratory investigators. The knowledge that we now possess of laboratory methods, and the facts which have been revealed by them have resulted from days and years of study of hundreds and thousands of workers. If an equal number of efficiently trained clinical observers, fired by an equal zeal for facts, were to begin to develop those facts in medicine which particularly pertain to the patient and the manner in which he reacts to disease, we would after a few years have a very different understanding of our patient from that which we have today. The criticism is made, not without some degree of justice, that the laboratory takes the keenest and most scientific minds and leaves the rest to practise clinical medicine. Is it any wonder, then, that clinical observation lags, especially when we couple with this the body and soul wearying aspects of practice? The human body is also a laboratory, and trained men must discover its important reactions.

Pathologic anatomy results in disturbed function or pathologic physiology. Therefore it behooves clinicians to familiarize themselves with normal physiology, that they may recognize the pathologic changes which are induced by disease. It is highly desirable that endowed hospitals for the study of the patient be established, in which the reaction of the patient toward the disease process be thoroughly investigated.

If one would understand a disease he should know the manner in which the body reacts toward it through the nervous, the chemical or endocrine, the physical, and the psychical systems. For example: It is not sufficient to know the morphology, the chemical constituents, and the laws of growth governing the tubercle bacilli in the tissues of man; nor to understand the histology and pathologic changes which take place in the tubercle; nor to recognize the symptoms which result from the presence of the bacillus in the body and to be able to relieve those symptoms. If we are fully to comprehend the disease, tuberculosis, we must be able to explain how the patient suffering from tuberculosis reacts through his nervous, endocrine, physical, and psychical systems towards the infection. It is desirable to know how this and that symptom or syndrome is produced. In order to be able to appreciate and explain these reactions, a more accurate knowledge of normal and pathologic physiology and a more painstaking and more accurate observation of the patient is necessary. It is necessary that our physiologists and clinicians be closer together. Physiologists should be clinicians who are capable of making accurate clinical observations; and clinicians should be grounded in physiology and appreciate that the picture of clinical disease is a picture of disturbed physiologic equilibrium, or pathologic physiology.

The various organs and systems of the body are

so intimately bound together that their actions and reactions are so intricately correlated that no organ can be studied or considered except in its relationship to other organs and the body as a whole. The body is a unit, and a study of the clinical manifestations of any particular disease of any particular organ is a study of the manner in which that disease disturbs the functions: (1) of the organ in which it is located; (2) other organs and structures aside from that in which it is located; and (3) the physiologic mechanism as a whole.

The conception of the unity of the human body shows that the attempt to divide medicine into specialties of this and that organ is one of the fallacies of the age. It is a weakness that must be corrected. If you will pardon me for being so bold, I will say that specialization, in spite of the great service which it has rendered both to medical science and the public, must be looked upon as an evil, though a necessary one during the developmental period of modern medicine. The medical progress of the past three or four decades has been greater than in all preceding centuries. This progress has been made possible only by men limiting their study to one subject, and then pursuing it incessantly. The study of pathology, bacteriology, serology, biochemistry, and physiology has each advanced in this way. The vastness of the field was early recognized and the impossibility of one doing research work in many lines of the fundamental sciences was considered as self-evident.

The clinician, recognizing the great number of new discoveries which were being announced from laboratories and other sources of investigation, and feeling his inability to apply them to the broad field of medicine as a whole, created the clinical specialties. While this specialization and intense study of individual organs and systems led to a rapid application of discovered facts in the study of individual diseases and individual specialties, it also emphasized more and more to the broad-minded investigator that all diseases, no matter what their nature, disturb the physiologic equilibrium of other organs aside from the one in which they are located, and of the entire body; and consequently must be looked upon as belonging to a medicine which looks upon the body as a harmonious whole—general medicine.

It must not be thought, however, that specialization has been in vain. It has not. It has developed a virile, efficient medicine in a comparatively short period of time. During this period it has been only through specialization that the best service could have been rendered to the public. As the specialties have developed more and more, however, they of themselves have demonstrated their own innate weakness and shown that their permanence, at least in their present form, is illogical and unnecessary. It would be foolish to attempt to predict how long specialization will last. It will last until the facts in each specialty are so well worked out and recognized that they may be given back to general medicine in a way that they may be readily comprehended and applied. In some specialties this will be longer than in others. In fact, it is probable that specialties in some lines will always be necessary; but I can not conceive of a future internal medicine which does not comprise diseases of the cardiovascular, renal, respiratory, and gastro-intestinal systems; diseases of metabolism; functional disturbance of the nervous and genito-urinary systems; diseases of the endocrine system; and all systemic infections wherever located, whether of an acute or chronic nature. Even surgery, which has so long been considered apart from medicine, will find its place as an intimate part of internal medicine. While it is probable that individual men will always show a preference for study of certain diseases, it will be necessary that this study be pursued from the standpoint of the internist. Every specialist should be first an internist, and thus learn to look at his subject as being a part of the greater field. This broad view is necessary if disease processes are to be considered in their true relationships and proportions.

There has been too much of a tendency for each specialist to look at the human machine from his own standpoint. Thus Morris has wittily said: "It has been my observation that if a patient visits a heart specialist and comes away without finding that there is something wrong with his heart, it is proof that the specialist is not at home." No specialist should consider a patient as his subject. There are disturbances in function in many organs and systems of most people, yet not of sufficient importance to be considered as clinical entities. It is the duty of the physician to weigh and to know the value of symptoms, and to disregard those which are unimportant. This has been one point on which specialism has been extremely weak. It has looked upon its own field with exaggerated importance, and failed too often in recognizing the broad relationship of the functions of each organ to the body as a whole.

Group Medicine

Just at this time the weakness of specialization is being recognized, either consciously or unconsciously; and, in an attempt to overcome it, there is a movement toward group medicine. If specialism is the last word in the development of

clinical medicine; if it is the desired end, then some such organization to overcome this inherent weakness of the system is necessary. But group medicine, too, has many inherent weaknesses; and its general application as a permanent workable institution for rendering efficient service to the sick is questioned.

The practice of medicine is based on the individual practitioner's knowledge and experience. He applies his practice according to that part of the medical knowledge and that part of the clinical art which he has been able to make his own. The application is personal. It is not that of a group; consequently, while theoretically the patient receives the benefit from a collective group of specialists, practically he falls far short of this. If the treatment of the case is guided by one physician, the treatment will depend on the conception that this physician has of the individual specialties in which clinical entities have been found, but there will be a unity in its application. If, on the other hand, several members of the group undertake the treatment of the same patient, confusion and misunderstanding are almost bound to arise. The patient is apt to be approached from as many different angles as there are specialists, and the treatment of the patient from the standpoint of the clinical art will vary with the different men. This not only makes for confusion and demoralization of the patient, but creates preference and stirs up jealousies which sooner or later disturb if they do not destroy the harmony of the organization. As long as human opinion depends upon experience and as long as human nature is as it is, it is doubtful whether group medicine will be a permanent institution capable of rendering a service which in any way compares with the best of the individual specialties which form the group. If it does not, it fails in its purpose.

The type of group medicine which has the least inherent weakness is that in which some very capable internist gathers about him a group of associates who are able to give him a correct report on those phases of the case which are purely impersonal, while he himself attends to the personal phases and gives the opinion and directs the treatment. Another type which often makes for good service is that in which one strong, dominant character gathers about him men whom he can direct and control.

That highly trained and eminently successful men will as a general thing voluntarily associate themselves together in order to be able to assure the best services to their patients is hardly probable. The all important factor in the success of group medicine is the head or dominant character. He should be preferably an internist, of splendid training, wide experience, and possessed of broad-mindedness. All groups so dominated should become successful and should be able to render service more efficient than that usually given.

The Practitioner of General Medicine

I have faith in the final construction of a unified medicine in which the facts developed in all lines of special study shall be utilized, and so put together as to simplify rather than confuse. Specialism, with its tendency to disorganization, and group medicine, with its attempt to overcome specialism's weaknesses, will be looked upon only as steps in progress. The permanent structure of efficient modern clinical medicine can not be erected, however, as long as there shall exist many specialties which are considered as entities. It is only by their merging into the whole that unity can be maintained, and the most efficient service be given.

Even should future experience show that it is through specialism that medicine can render her best service, it will be through specialists who are primarily and fundamentally internists. With greater knowledge of the workings of the human body, particularly of the manner in which the action of its various parts are correlated and integrated through its nervous and chemical controls, will come an appreciation of its unity; and just as it was natural during the early developmental period of modern medicine to emphasize specialism, so with a full knowledge will it be equally natural to emphasize the importance of general or internal medicine. The importance of the whole will assume its true relationship when compared with its parts. Preparatory to and for the purpose of hastening this end, those who are interested in this movement should consult together and devise means for furthering the interest of general medicine.

"The physician henceforth becomes not merely a person who stands ready to treat disease when the accidental and incalculable forces of custom, hearsay, and natural propinquity bring the patient to him. He becomes now a person who actively wars against disease, who searches it out wherever it may be found. Thus he approaches for the first time the possibility of truly preventive action, the possibility of killing disease in its infancy or preventing its birth. For it is well known that preventive action is well-night impossible if we are forced or accustomed to wait until the disease has made such progress that the patient himself is aware of it and forced by its ravages to ask medical aid."—Richard C. Cabot,—"Social Work."

SOCIAL WORKERS FOR MENTAL HYGIENE

By HARRY C. SOLOMON, M.D., Massachusetts State Psychiatric Institute, Boston, Mass.

IT is a very simple matter to care for a patient in a hospital. The outlining of treatment is all that is required of the physician, and his orders are carried out without more ado. Thus, a diabetic may be ordered diet number two; he gets diet number two without any more thought from the physician about the matter. Or, if it be a tuberculous patient, the physician gives certain general and special orders,—then his job is done and he is sure that his orders will be carried out. The reason for this relative simplicity is, of course, "organization" and "system."

The treatment is much more complicated when the patient cannot be readily hospitalized. The physician ordinarily lacks organization and system in care for his private patients; and until very recently the dispensary physician was even worse off than the private physician, being able to give a relatively short time to the individual patient and often having to deal with patients of an inferior intelligence and insufficient means. Orders were likely to go amiss, and advice not to be followed. Often the orders given could not be carried out by the patient, either because he did not have the means at his disposal, or else because he did not know how to carry out complicated orders. To improve this state of affairs, to deal in possibilities instead of unattained desires, medical social work materialized, and, like all hardy new growths, it flourished, bringing social service technic into the medical clinic, and aiding the patient and his family in many ways new to the physician. It is now a part of the clinic and has become practically indispensable.

Even more important than medicine, which often deals with mechanical or functional disorders, or with defects of single organs, is the psychiatrist's objective of a fully integrated personality adapted to its environment.

Physicians must evaluate the findings of the psychological as well as the physical laboratory. He needs to consider past as well as present reactions, for no diagnosis is complete which does not consider the whole organism and its characteristic attitudes.

In the achievement of such an objective, medical science must use the knowledge of such other sciences as psychology and sociology, in an intelligent program for the restoration of the maladjustments caused by or producing illness.

The Art and Science of Mental Health

But all this is old, established, and accepted. Today the general hospital and dispensary consider the social service almost as indispensable as the laboratory. The object of this review is to focus attention on another field of medical social work, not so old, possibly not yet so firmly established, and not so exuberant—namely, psychiatric social work. If not so old as general medical social work, it has the advantage of all youthful things, the promise of rapid growth, virility, and optimism.

Psychiatry deals with cases of insanity, but today it is far more inclusive than this. It may better be called the "art and science of mental health." Its domain takes in the neuroses or borderline states; conduct disorder, with its resultant legal entanglements; and child study, with particular relation to the unusual child. Its aims reach more and more into the community and away from the institutional cases of former days. In this field, again, one finds that the care of a patient in a hospital is a comparatively simple matter. A patient who is committed to an institution for custody because he is suffering from mental disease is, as long as he remains in the hospital, a simple problem as far as the doctors and the hospital are concerned; but in relation to such a patient psychiatry has a bigger and broader purpose than merely caring for him during his acute or chronic sickness. The study and care of the patient begins, of course, long before he reaches the state of institutional care. There is a longer or shorter period during which, as a member of the community, he is in a sense to be considered an out-patient; and those who recover must take their places again in the community to receive supervision and medical care. The extramural care of mental and nervous patients is far more difficult than the intramural care; and, just as in the case of the general hospital patient, social service has grown up as an important institution, so in relation to mental cases a similar organization has been developed. It is probably more important to have social assistance for the handling of a psychiatric problem than in any other medical contingency.

Multiple Adjustments Involved

Let us consider one of the most simple cases,—a married male adult without children. He first comes to the attention of the physicians in a state of excitement. This is so apparent that it is at once obvious that custody is demanded. As he is without means, the state defrays the expense of his care; but his wife is left in a condition which makes it necessary for her to earn her own living. Assistance and guidance will put her in a position to care for herself. Obviously, a physician is not in a position to aid her in this situation, and here a problem arises that can be turned over to the social service for solution. The importance of this matter from the standpoint of the patient becomes apparent at the time when the patient is recovered to a sufficient degree to be discharged from the institution. The hard problem for this patient then arises, when he goes back into a community somewhat suspicious of him, because he has been adjudged insane. A new adjustment is necessary, and the social worker who has been in touch with the situation during this period can again come forward and help in obtaining a position for him, assist the wife in re-establishing a home, and offer a bulwark of support which may be the most important bit of therapy that the patient can possibly receive. He has someone to rely upon and to aid him; a contact between the institution and the patient is kept alive through the mediation of the social service department, and visits for further medical advice are readily made possible.

As stated, this is one of the simplest contingencies. As the cases become more and more complicated, the social conditions more intricate, the need and value of the social worker becomes more and more apparent. As a matter of fact, in the present state of psychiatry the environmental factors are in the majority of cases the ones that are most easily affected of all the etiological factors. They play a very important part in prophylaxis and treatment. For proper handling there must be someone who

understands the technic of environment and the methods by which it may be changed or corrected. Certainly every psychiatrist should be, and is, able to see the need of changes in environment and to outline what the conditions should be; but it is a very rare exception when he is able actually to control the situation and change the environment. This requires a technic not medical but social in type. This is particularly true in mild nervous and mental disorders and those whose care is extramural. In such cases the difference between home conflicts, uncongenial surroundings, unhealthy environment, nerve racking work, and a peaceful home life, happy and healthful surroundings, and congenial work may supply the difference between mental health and mental disease. As already indicated, the physician may be in a position to diagnose the difficulty, but he is rarely in a position to to correct it. The special knowledge and training of the social worker should be such that this solution may be attained.

As delinquency and crime come more and more to be recognized as depending upon certain mental defects or anomalies, their correction comes more and more into the line of physhiatric work. In this field, again, the psychiatrist's chief work is the diagnosis and outlining of treatment. A large part of this treatment is social in character and its execution will depend upon the abilities of the social worker to whom the carrying out of the treatment may be detailed.

Sometimes in a spirit of raillery the psychiatrist is characterized as "a sublimated social worker." Leaving the sarcastic implications aside, it is true that the social aspect of many psychiatric cases is dominant; but the word "sublimation" refers to the fact that a psychiatrist is not a social worker in the ordinary sense of the word; he must have outside assistance, and this outside assistance must be given by a trained psychiatric social worker. We must grant, then, that a social worker is an essential component of any successful psychiatric organization. This is particularly true in those psychiatric organizations caring for extramural cases, but there can be no truly intramural care alone for a patient, because he is a member of the community either before he is committed to the institution or after he leaves it, and even during his stay there are many social problems arising in the case, the proper handling of which will shorten his stay in the institution and, if he is a recoverable case, hasten his recovery.

By far the largest field of psychiatry is that of mental hygiene; or, at least, the handling of cases which are not institutional cases, and here the need of manipulating the environment is particularly essential. It thus becomes evident that social work is essential in psychiatric situations; and if it is to be done at all it should be done on a high plane. The psychiatric social worker must be a person thoroughly trained in the technic of social work. Such training means more than mere case work, although this is an essential for all good psychiatric social work. In addition, the psychiatric social worker should have a knowledge of the underlying economic and social principles of modern society. For dealing with the abnormal or difficult personality a certain training in psychology and abnormal psychology is essential. One must thoroughly understand the types of personality with which one deals. One ordinarily accepts as a premise that any social worker has an understanding of personality as an inborn gift. This may or may not be so, but certainly the more insight into personality the worker has the greater will be her success.

While everyone, in his ordinary experience of life, learns much about the personalities of the individuals with whom he is in contact, certain special knowledge will be necessary for a person dealing with the anomalous or abnormal personalities. A normally astute individual will, of course, learn a good deal in this matter by experience. But this may in no way be considered equivalent to a fundamental training. We may then assume that psychiatric social work is a necessity; and, that to do it successfully, proper training is of the utmost importance. This training should be both theoretical and practical. On the theoretical side a knowledge of sociology, psychology, and the elements of psychiatry is needed. On the practical side, the usual training in social case work and special training in the handling of mental disease cases, delinquency, and the like, must be obtained. The proper training of a psychiatric social worker will include work of a collegiate character, and practical experience in social work and psychiatric social work. With a recognition of these factors a good beginning in this type of training has been made by the Smith College Training School for Social Work, which offers both the collegiate training and the practical work, and presages a good outlook for the future.

The Need Is Urgent

There has been a growing recognition of the need of psychiatric social work throughout the country. Whereas eight to ten years ago the number of hospitals supplied with such service could readily be counted on the fingers of one hand, now hospitals throughout the country have instituted this service. The demand created by this rapid installment of psychiatric social service departments has undoubtedly led to a great shortage of adequate material, as can be vouched for by the experience of the Red Cross in filling the positions in the newly organized Public Health Hospitals throughout the country.

The Red Cross is now making a vigorous campaign to recruit one hundred social workers already trained in case work to be prepared through summer courses in social psychiatry at the Smith College Training School, New York School of Social Work, and Chicago School of Civics, to fill the immediate pressing demand for psychiatric social workers; and at the same time is urging college graduates to enter the regular training courses in these schools now, in order to be ready for positions a year later, when the demand for trained workers is expected to be even greater. The Bureau of Medical Social Work of the Red Cross in Washington is offering scholarships to trained social workers to take the summer courses. A few scholarships for the training course in the Smith College Training School for Social Work may be available for college graduates.

The difficulty in obtaining adequately trained workers has also been felt and commented on by the heads of numerous hospitals who have attempted to install a proper system of social service. If we are to continue our advance in psychiatry, it will be necessary to stimulate the training of the psychiatric social worker; and the type required is preferably the college trained person who has had special training somewhat as outlined here. I believe it behooves all who are interested in psychiatry to stimulate interest in this work by drawing the attention of qualified persons to this profession. It is in this spirit that this paper is written.

"Consciousness of the need of adjustment to surrounding conditions and events is the *raison d'etre* of thought." —Ordway Tead.

LAW FOR THE DOCTOR*

By LESLIE CHILDS, Attorney at Law, Indianapolis, Ind.

Liability of a Physician for Selling Drugs Without a Prescription

An interesting case, relative to the liability of a physician for selling drugs without a prescription, under an act requiring the issuing of a prescription before certain drugs could be lawfully sold, is reported under the title of Niswonger *vs.* State, in 179 Ind. 653. The case arose in Indiana, under the Drug Act of 1911 of that state, the facts being as follows:

Henry W. Niswonger was a licensed physician and pharmacist located in Allen county, Indiana. He was accused of selling one-eighth of an ounce of cocain to one John Burton for the price of one dollar. The said sale was alleged to have been made without the written prescription of any duly licensed physician, veterinarian, or dentist, as required by the Indiana Drug Act.

The Drug Act, under which the prosecution was made, provides, among other things, as follows: "That it shall be unlawful for any druggist or any other person to retail, sell, or barter or give away any cocain, . . . except upon the written prescription of a duly registered physician, licensed veterinarian, or licensed dentist. . . .

From the report it appears that the defendant's main contention was that as a physician he had the right to furnish his patients medicine without writing a prescription. And, that if, in his opinion, cocoain was required, he could lawfully sell it without complying with the provisions of the Drug Act quoted from above.

The case was tried in the Circuit Court for Allen County, without the intervention of a jury, and resulted in the conviction of the defendant. From this judgment an appeal was prosecuted to the Supreme Court. In passing on the points raised the latter court in part said.

"The statute in question prohibits the sale, barter, or giving away of cocain except under certain conditions, and it was not intended to exempt licensed physicians from its terms. There is nothing in the Act which will authorize a physician to operate a drug store and, as such druggist, to sell cocain indiscriminately to any one applying therefor without having a written prescription as required by law. Such prescription is a prerequisite to any sale of either of the drugs mentioned in the statute, and must be retained on file by the person making the sale." The Supreme Court thereupon affirmed the judgment of the lower court.

The holding may, upon first glance, appear to exalt the letter of the law at the expense of the spirit, but a slight examination of the subject quickly proves that this is not the case. The language of the Act is plain, clear, and concise, leaving no grounds whatever for an exception in favor of anyone. Had there been an intention on the part of the legislature to exempt physicians from the operation of the Act, it is reasonable to suppose it would have been expressed in the statute, as other exceptions were. Manifestly it was not within the province of the court to read such an exception into the Act, had it so desired.

Presumably, no offense would have been committed had the doctor taken the time to write a prescription for his customer before giving him the cocain, though this may well be doubted, unless the customer was in reality a patient and as such in need of cocain. Certainly if the customer was merely a buyer of cocain, as it seems from the report, the doctor would have violated, at least the spirit of the law, in selling it either with or without a prescription.

It is worthy of note that the decision in this case is in harmony with a like case which arose in Oregon under a similar statute, the latter case holding that the fact that the seller was a physician gave him no right to sell certain drugs—morphin in this instance—without a prescription, where the statue provided that they should only be sold on such a writing.

When it is also considered that the effect of permitting such an exception would tend to open the way, at least make it easy, for anyone possessed of a physician's license to engage in an illicit traffic with certain drugs, the soundness of the decision is further apparent.

*The thirteenth of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

CARDIAC AILMENTS A MOST PREVALENT CAUSE OF DEATH

Cardiac ailments are far more prevalent than is generally suspected, while ignorance of this fact is a matter of surprise, since the danger from this class of maladies is fully understood, according to a pamphlet issued by the Association for the Prevention and Relief of Heart Disease from their new headquarters, 325 East Fifty-seventh Street.

An official report of the health department the Association shows that 10,682 deaths in New York City alone in a single year were directly due to organic disease of the heart, while in the same period tuberculosis, in all its forms, caused 9,622 deaths and cancer but 4,702.

The Association declares that not less than 25,000 public school pupils of the city have permanently damaged hearts while many more suffer from other diseases which are liable, unless controlled, to bring about the same result. Adults suffer for years from heart disease, mistaking their symptoms for those of indigestion or other stomach troubles, and wonder why their sufferings do not yield to home remedies.

The Association in its pamphlet asserts that the prevention of heart disease presents both medical and social problems, but it urges the prompt removal of diseased tonsils and adenoids and the immediate care of decayed teeth, as the most effective preventive against infection with rheumatism, which is cited as an infectious disease most frequently affecting the heart.

Poisons of alcohol, tobacco, tea, and coffee are mentioned as "playing a definite rôle" in degenerate diseases of the heart.

The Association is now engaged in furthering the establishment of dispensary classes for workingmen with crippled hearts in the many city hospitals, and also seeks the opening of more convalescent homes to patients of milder type, and the founding of institutions for the permanent care of permanent invalids from the same cause.

Dr. Lewis A. Conner is president of the Association, and Ray Morris, the treasurer, while among the governors, who number many lay members, are Dr. Alexander Lambert, Dr. Haven Emerson, Dr. John W. Brannan, and Dr. S. Josephine Baker.

WALTER H. BROWN TO RED CROSS

Dr. Walter H. Brown has been appointed Associate Director of the Department of Health Service of the American Red Cross, with headquarters in Washington, D. C.

Dr. Brown is a graduate of Jefferson Medical College (1906) and of the School for Health Officers of the Massachusetts Institute of Technology and Harvard College (1915). For the last three years he has been Health Officer of Bridgeport, Conn., a member of the Connecticut State Board of Health, and lecturer at Yale University.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

INBREEDING AND OUTBREEDING. Their Genetic and Sociological Significance. By Edward M. East, Ph.D., Harvard University, Bussey Institutions, and Donald F. Jones, Sc.D., Connecticut Agricultural Experiment Station.[1]

Inbreeding and Outbreeding; Their Genetic and Sociological Significance is one of the "Monographs on Experimental Biology" now being published under the editorial direction of Dr. Jacques Loeb. In it the authors discuss the much disputed question as to the effect of inbreeding and outbreeding. In a series of introductory chapters they examine the mechanism of reproduction, the mechanism of inheritance, and mathematical considerations. They then come to their actual theme. To know the facts as to the effects of in- and out-breeding, an immense number of carefully controlled experiments must be carried through a long series of generations. The older observations have little value as they fail to meet the rigid demands of present day science.

As regards inbreeding, the recent experiments upon mammals, insects, and hermaphrodite plants are carefully detailed. The most complete are Castle's studies upon *drosophila* carried through fifty-nine generations and the long series of experiments on maize made by Shull, East, and Jones. Interbreeding is undoubtedly, at first, attended with harmful results. To what degree these are actually due to the interbreeding, and not to other causes, is important to determine. After some generations the disadvantages may disappear and health strains of markedly true type result. "Inbreeding has but one demonstrable effect on organisms subjected to its action—the isolation of homozygous types. The diversity of the resulting types depends directly upon number of heterozygous hereditary factors present in the individuals with which the progress is begun."

Outbreeding is next carefully examined. There is no question that crossing between varieties and even between species gives immediate rise to individuals of much vigor and frequently desirable qualities, although often sterile. The facts of hybrid vigor and its causes are investigated at length. The sterility that accompanies inbreeding and that which accompanies outbreeding are quite different and must be clearly recognized as such. Outbreeding, within limits, is clearly advantageous. The deductions made are now applied to the questions of evolution and the betterment of animals and plants in domestication. Neither inbreeding nor outbreeding is to be neglected; they may well be combined. Analyze the material by systematic and vigorous interbreeding; then cross the different constant types and test one combination after another until a real improvement be effected.

In two final chapters the matter of inbreeding and outbreeding as related to man is considered. Here, again, inbreeding is not in itself harmful; nor is outbreeding necessarily advantageous. In one chapter the question of family purity and desirable selection to that end is considered; in the other, the problem of intermingling of races is examined. By inbreeding desirable types may be isolated; by judicious crossing of such types desired vigor and a useful combination or compensation of characters may be brought about.

FREDERICK STARR.

1. J. B. Lippincott Company, Philadelphia, 1919.

THE HEALTH OFFICER. By Frank Overton, A.M., M.D., D.P.H., sanitary supervisor, New York State Department of Health, and Willard J. Denno, A.B., M.D., D.P.H., medical director of the Standard Oil Company., formerly secretary New York State Department of Health.[2]

This excellent handbook for health officers is sure to run through many editions. It is for this reason that a few minor criticisms are ventured upon in this brief review, which, because of its conciseness, might well be limited to extolling the numerous merits of the work. By conscientious labor the authors have produced a remarkable *vade mecum* for the health officer; but it is to be regretted that the numerous illustrations of procedures and legislation are limited almost exclusively to the State of New York. Descriptions of organization and achievements of health work in other states and municipalities would have added to the value of the book. The enlargement of certain sections would have been advantageous; for example, more comprehensive material dealing with insect borne diseases would have made it of greater service to health officers in localities where these diseases are prevalent. In discussing the relationship of the health officer to the public and to physicians it would have been of advantage to discuss also his relation to voluntary public health agencies. In this connection, the modern movement toward health centers might have been mentioned; and a discussion of principles of efficiency in administration, as well as of budget making, would have been of value. The chapter on epidemiology should be materially strengthened and examples of epidemiological studies of note cited. Either in this chapter or in connection with the section on vital statistics the principles of the statistical theory of correlation should have been, if not discussed, at least pointed out; likewise, the use of the graphic method should have been illustrated.

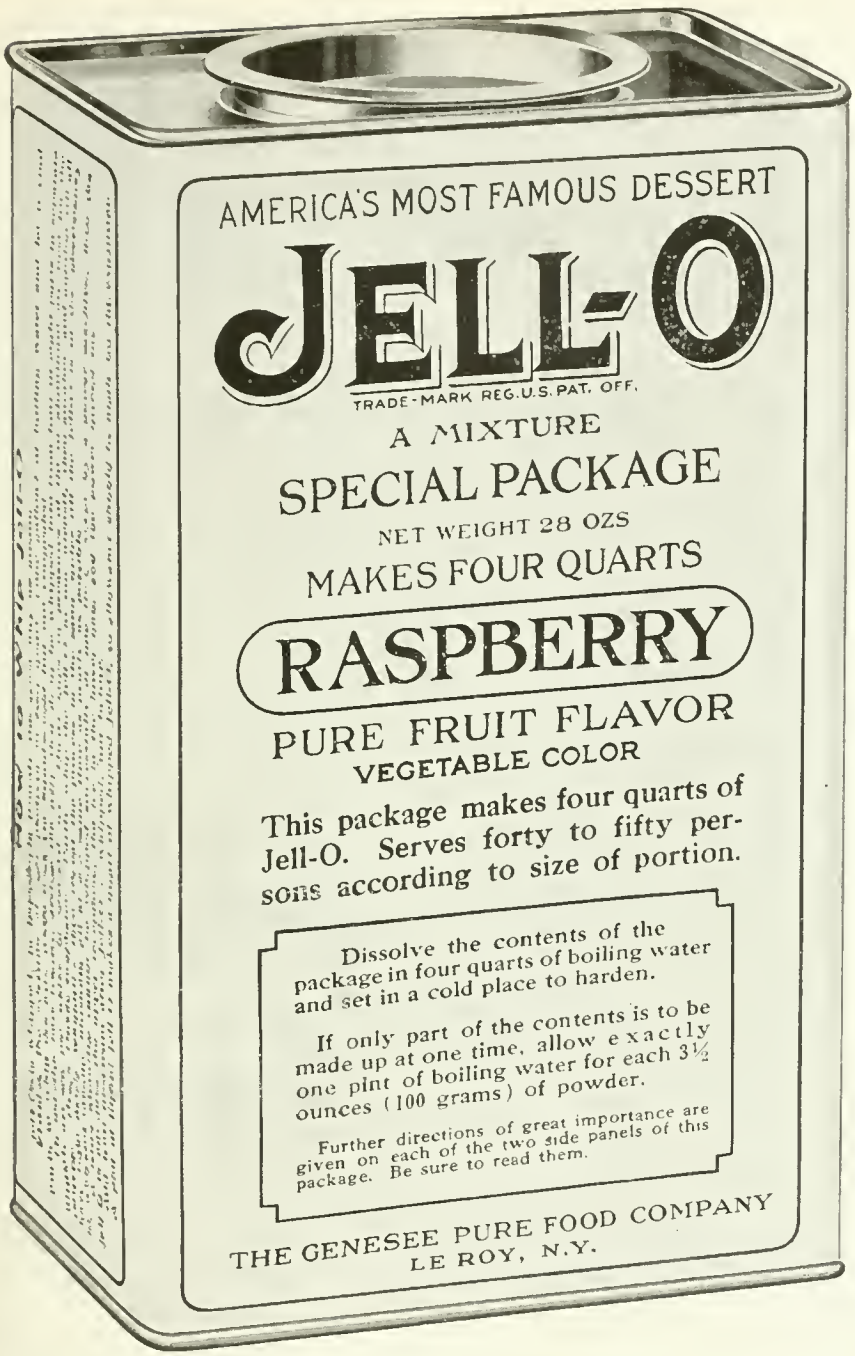
The book would be strengthened by the addition of a chapter dealing with the organization and management of a hospital for contagious diseases.

Throughout the work, the adjective *un*sanitary is used instead of *in*sanitary.

With these and other changes and additions incorporated this work is destined to occupy the place of a standard reference and guide for the health officer. The authors are to be congratulated on the successful outcome of their effort.

E. H. L. C.

2. W. B. Saunders Co., Philadelphia, 1919.


AMERICA'S MOST FAMOUS DESSERT
JELL-O
TRADE-MARK REG. U.S. PAT. OFF.
A MIXTURE
SPECIAL PACKAGE
NET WEIGHT 28 OZS
MAKES FOUR QUARTS
RASPBERRY
PURE FRUIT FLAVOR
VEGETABLE COLOR
This package makes four quarts of Jell-O. Serves forty to fifty persons according to size of portion.
Dissolve the contents of the package in four quarts of boiling water and set in a cold place to harden.
If only part of the contents is to be made up at one time, allow exactly one pint of boiling water for each 3½ ounces (100 grams) of powder.
Further directions of great importance are given on each of the two side panels of this package. Be sure to read them.
THE GENESEE PURE FOOD COMPANY
LE ROY, N.Y.

The Special Size for Hospitals

One gallon instead of one pint of Jell-O is made up from the new Special Package of Jell-O, saving nine-tenths of the time required for opening and emptying the common small size.

This change eliminates the last remaining bit of real work connected with the preparation of Jell-O dishes.

Among the dishes which the nurse likes to prepare are the refreshing and attractive salads of which the foundation is Jell-O. These are made by adding to the Jell-O chopped celery and bits of fruit and nutmeats. They are moulded in teacups or little moulds and each is turned out on a lettuce leaf.

As Jell-O contains sugar and the other ingredients that would have to be added if plain gelatine were used, there is a great saving of time and labor, and the result is always satisfactory. The nurse who uses Jell-O for her dainty dishes is never obliged to depend upon luck.

Jell-O is made in six pure fruit flavors: Strawberry, Raspberry, Lemon, Orange, Cherry, Chocolate.

The new Special Package for hospital use contains enough Jell-O to make four quarts of jelly as against one pint of the regular small size.

THE GENESEE PURE FOOD COMPANY
Le Roy, N. Y., and Bridgeburg, Ont.

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.
R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.
H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

22-24 East Ontario Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

BOOKS OF THE MONTH

(Continued from page 468)

PSYCHOLOGY FROM THE STANDPOINT OF A BEHAVIORIST. By John B. Watson, professor of psychology, the Johns Hopkins University.[3]

The materials of every day contact form the proper against the mysterious explanations offered by earlier psychologists he discards all traditional classifications. basis for psychologic research, according to Watson; and in his determination to direct study toward facts, as Practically the only terms he has used in this thesis are thinking and memory, and these are carefully re-defined.

The chapters dealing with the physiologic basis of the necessary part activities are partieularly valuable and his treatise on the functions of the endocrine glands constitutes an admirable summary and correlation of the recent work in this field.

After delimiting the rôle played by the emotions and instinct, which he designates as "patern reaction," he traces the increasingly complex adaptations through systems of explicit bodily habits to complete integration.

The chapters on the completely integrated organism have to do with the process of learning and with concrete matters for future study. All of the conclusions stated have been worked out in objective or behavioristic terms. His method puts aside presuppositions and the results of his psychologic experimentation are immediately practicable. The work is perhaps the most important contribution to psychology in a generation.

INFECTION, IMMUNITY AND SPECIFIC THERAPY, with Special Reference to Immunologic Technic. By John A. Kolmer, M.D., Dr. P.H., M.Sc., assistant professor of experimental pathology, University of Pennsylvania. With an introduction by Allen J. Smith, M.D., Sc.D.. LL.D., professor of pathology, University of Pennsylvania.[4]

The second edition is most welcome to those who know the excellent qualities of the first edition. It is a work as valuable to the practising physician as to the laboratory worker; and no modern laboratory dealing with medical diagnosis, serology, and biological chemistry can afford to be without a copy on the work bench.

The second edition contains a digest of all the important work on this subject since the appearance of the first edition. There is no other book in English which gives to the student such a clear presentation of the theory of modern serological problems and their application to medical diagnosis.

ELEMENTARY BACTERIOLOGY AND PROTOZOOLOGY. For the Use of Nurses. By Herbert Fox, M.D., director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania, Pathologist to the Zoological Society of Philadelphia, etc.; Major, M.C., U.S.A.[5]

This is really not a bacteriology for nurses, but rather an abbreviated textbook of the elements of bacteriology. Neither the subjects chosen for discussion nor the manner of their exposition would seem to meet the more usual and urgent problems of the nurse. Some understanding by the nurse of the processes of immunity is most desirable, but the author essays the impossible in attempting to explain the entire subject in five pages. Disinfection and sterilization, matters of the utmost practical importance, deserve far more detailed treatment than has been given them.

3. J. B. Lippincott Company, Philadelphia, 1919.
4. W. B. Saunders Company, Philadelphia, Pa., 1917.
5. Lea & Febiger, New York, 1919.

(Continued on page 24)

HEBE

All the food value of skimmed milk plus the food value of scientifically refined vegetable fat

Used in Cooking it Enriches Food, Improves Palatability and Helps to Balance the Diet

HEBE is a scientific emulsion of pure skimmed milk and carefully processed cocoanut fat. It is a nutritious, healthful, economical food product to be used as a liquid ingredient in cooking.

HEBE contains all the nutritive elements of skimmed milk plus finely divided fat. In this form the vegetable fat is readily assimilated making HEBE an easily digestible food. **Used in cooking and baking, it enriches foods, improves palatability and helps to balance the diet.**

In the production of HEBE complete sanitation is the first concern. Extreme care is exercised throughout the process from the refining and testing of the ingredients to the final sterilization of the finished product in the hermetically sealed cans.

Physicians, health officers, dietitians, public health and industrial nurses should be interested in HEBE, not only because of its dietetic value, but also because of its importance as an economic addition to the country's food supply. HEBE reclaims for use as human food, skimmed milk, billions of pounds of which are used in this country every year for stock feed.

Skimmed milk is highly nutritious and should be utilized for human food. Enriched with vegetable fat, as it is in HEBE, it makes a desirable, economical and healthful food product for cooking purposes.

HEBE is properly labeled and sold for just what it is—"A Compound of Evaporated Skimmed Milk and Vegetable Fat." Directions for its use are printed plainly on the label. It is not intended to be used in place of milk for infant feeding. We will mail on request a booklet giving the complete facts about the dietetic and economic value of HEBE. Address 2622 Consumers Building, Chicago.

THE HEBE COMPANY

Chicago **Seattle**

Gradwohl Laboratories

Chicago—7 W. Madison St.
St. Louis—927 N. Grand Ave.

are especially equipped to satisfy the needs of

Industrial Surgeons

By reason of well equipped laboratories and skilled workers we are prepared to handle all your problems in this line.

Every Wassermann is supplemented by a Hecht Gradwohl Blood Test which adds ***thirty per cent*** to the column of correct positives.

Our blood chemical methods are accepted everywhere as standard.

Sanitary Water Analyses

Medicolegal Problems of all kinds.

Consult us freely. Literature and containers Free on Demand.

Let us assist in the great work of INDUSTRIAL MEDICINE.

(Continued from page 22)

PUBLIC HEALTH AT NORFOLK, VA.

The Public Health Department of Norfolk, Va., under the direction of Dr. P. S. Schenk, proposes a progressive and ideal health center which will bring into one group the children's court and domestic relations court, a general medical building, the prenatal building, the detention building, the emergency hospital building, and an administration building which will hold the drug dispensary, the city laboratories, as well as the executive offices. The unifying of all the work of the department and its proper housing constitute a very progressive policy.

HOSPITAL STANDARDIZATION

Two events of interest in the progress of hospital standardization are reported in the current issue of *Surgery, Gynecology, and Obstetrics*: The gift from the Carnegie Corporation of $75,000 to be used for hospital standardization; and the official adoption of the standardization plan by the hospitals of New York City under the direction of the Department of Public Charities. The constructive program looking toward standardization is outlined chronologically. The Carnegie gift means encouraging approval as well as financial aid in the achievement of the work. Its adoption by the hospitals of New York City will insure on a large scale the demonstration of the advantages of good equipment, dependable management, adequate records, and the provision for regular and fearless review of what is actually accomplished for the right care of patients.

MEDICAL EXAMINERS INCORPORATE

Senate Bill No. 3959 has been introduced by Senator Kellogg to incorporate the National Board of Medical Examiners of the United States of America. It provides that Rear Admiral William C. Braisted, U. S. N.; Major General Merritte W. Ireland, U. S. A.; Surgeon General Rupert Blue, U.S.P.H.S.; Admiral Edward R. Stitt, U. S. N.; Colonel Louis A. LaGarde, M.C., U. S. A., retired; Assistant Surgeon General William Colby Rucker, U.S. P.H.S.; and Drs. Herbert Harlan, Baltimore; Isadore Dyer, New Orleans; Victor C. Vaughan, Ann Arbor, Michigan.; Walter L. Bierring, Des Moines, Ia., and such other persons as may be chosen who are members of the National Board of Medical Examiners, as unincorporated, non-profit association, known as the National Board of Medical Examiners, and their successors, are hereby created and declared to be a body corporate.

COST OF RECREATION

The following figures are given out by the Playground and Recreation Association of America in reporting recreational activities during 1919:

Seventeen cities report a total of $13,510,000, an amount which exceeds the 1918 figures by $13,441,073.14. Pittsburgh has issued $831,000 worth of bonds. Detroit's campaign for additional playground facilities resulted in an agreement to issue $10,000,000; Portland, Ore., issued $500,000 in bonds for this purpose; Indianapolis issued $87,000 in bonds.

The Playground and Recreation Association of America reports that four thousand playgrounds and recreation centers were maintained in 1919 under paid leadership. More than eight thousand men and women were employed by municipalities to direct these activities, and more are studying to develop the requirements along this line.

(Continued on page 26)

CHLORAZENE

THE DAKIN ANTISEPTIC

Ready for Use by Dissolving in Water

Chlorazene is the simplified Dakin antiseptic.

No laboratory apparatus nor involved and technical process is required for its use.

Chlorazene may be used in twice the strength of the sodium hypochlorite solutions without irritation.

Chlorazene is stable—it will keep indefinitely.

Irrigative solutions for use according to the Carrel-Dakin method may be prepared with Chlorazene promptly and economically.

Hospital Package No. 1 of Chlorazene Powder makes 4 gallons of 0.25 per cent solution and costs only 68 cents net.

Chlorazene Tablets have a wide range of usefulness in surgery and general practice. One tablet dissolved in one ounce of water makes a 1 per cent solution and is used for cuts and wounds, boils, carbuncles and ulcers and skin affections.

One tablet dissolved in 4 ounces of water (¼ per cent solution) is effective as a gargle, mouth wash and nasal douche. As a vaginal douche four tablets are used to a quart of water.

Send for interesting booklet

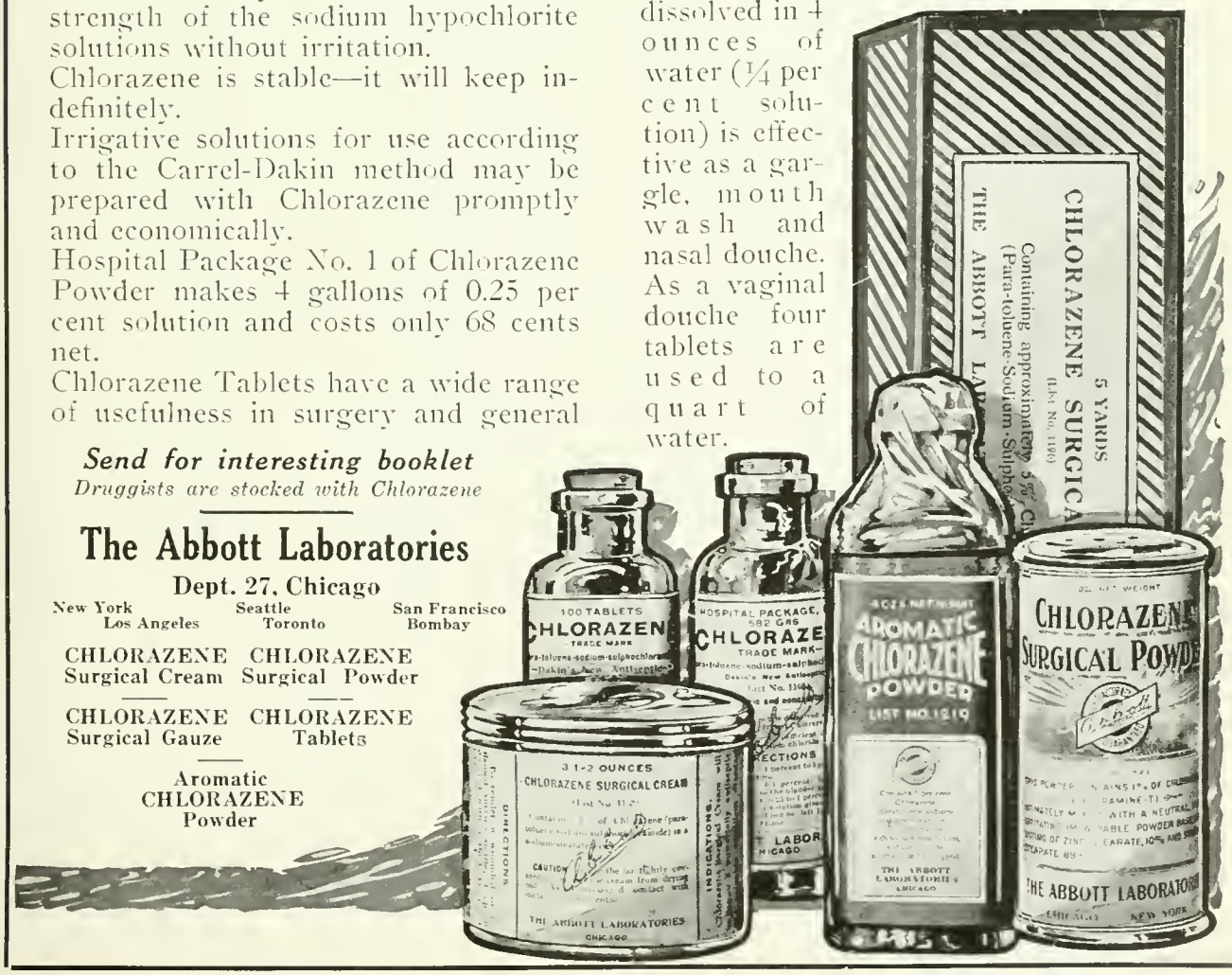
Druggists are stocked with Chlorazene

The Abbott Laboratories

Dept. 27, Chicago

New York Seattle San Francisco
Los Angeles Toronto Bombay

CHLORAZENE Surgical Cream
CHLORAZENE Surgical Powder
CHLORAZENE Surgical Gauze
CHLORAZENE Tablets
Aromatic CHLORAZENE Powder



Food Flavor and the Mental Attitude

To every prescribed treatment for human ills should be added the element of contentment for the patient, for the very decided relationship between mental ease and physical responsiveness has long since been established.

It is apparent, then, that food, the very source of energy and repair of tissue, should be made as pleasing as possible for those who are physically subnormal, that the chain of healthful reactions—from mental to physical—may be complete.

SAUER'S
PURE FLAVORING EXTRACTS

make food especially satisfying to the taste. By their use the prescribed diet can be made to render its utmost benefits to the patient.

Various American and European Expositions have awarded seventeen highest awards to Sauer's Extracts for Purity, Strength and Flavor.

Sauer's is the largest selling brand in the United States.

Further particulars free for the asking

The C. F. Sauer Company
Richmond, Virginia

(Continued from page 24)

PSYCHOLOGIC TESTS FOR CHAUFFEURS

New Jersey has awakened to the need of psychology tests for would-be chauffeurs. Commissioner William L. Dill of Newark has discovered that many drivers in New Jersey are only seven years old mentally. Many applicants have licenses who are able to pass examination through coaching and drilling would by a psychological test be disclosed as totally unfit to drive automobiles through the streets.

NEW SYSTEM OF VOCATIONAL GUIDANCE

Dartmouth College proposes to give college boys a knowledge of their patitude. Psychological aids will determine their types and their general grades of intelligence. A system of condensed records will follow their progress and note variations of affirmations of the traits identified. In this manner it will in many instances be possible to determine very easily the line of work that offers them the best chance of success.

As the work develops it will become possible to give the employer who is in search of recruits from the college complete and accurate information of candidates for positions. Such vocational guidance differs from vocational training, and the system obviously enables the application of physical and mental corrections and stimuli as needed.

TUBERCULOSIS AMONG WOMEN WORKERS

Recent statistics seem to indicate that the increased death rate from tuberculosis among white females between the ages of 25 and 55 is due in no small degree to the large and sudden influx of millions of women into industrial pursuits. According to the National Tuberculosis Association, the women of America are beginning to pay the bill for their entrance into industry. It seems unreasonable to expect that some three million women who during the war took up new and vigorous forms of industrial life should not suffer from increased incidence of tuberculosis from the sapped vitality and lowered resistance that such a life entails. The figures of the life insurance companies seem to indicate that men have been able to stand the strain of war work better than women.

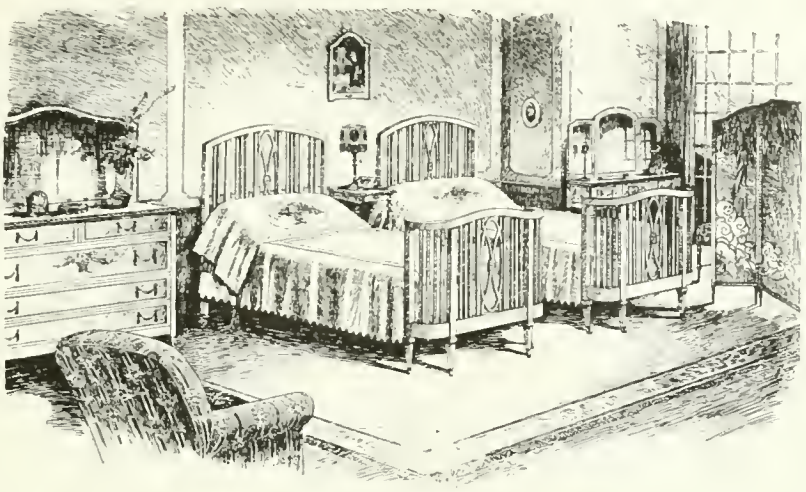
MALARIA IN SOUTHERN ITALY

Signor Nitti estimates that there are at least two million hectares of land in southern Italy that are not cultivated on account of malaria. He computes the annual cases of malaria at upward of two million, with 15,000 deaths. The mortality is not extreme, but the consequences in enfeeblement and entailed disease are beyond computation. For every one hundred thousand inhabitants, the annual deaths for malaria are: In Liguria, 1; Piedmont, 3; Lombardy, 4; Veneto, 7; Sicily, 78; Calabria, 83; Apulia, 120; Basilicata, 124; Sardinia, 169.

FREE CLINICS ON TRACHOMA

In Kentucky regions trachoma has been very prevalent and the spread of contagion has been favored by the complete ignorance of the people as to the extent of the disease and its serious results if not checked. Red Cross workers in the district have been instrumental in securing the service of Dr. McMullen of the United States Public Health Service as well as a specialist from Baltimore and nurses who instituted free examination and treatment. In addition to the Kentucky work, Red Cross cooperation In addition to Kentucky, Red Cross cooperation has been effective in trachoma work in Ohio and North Dakota.

(Continued on page 28)



Sound, Restful Sleep—as Essential to Individual Health and Efficiency as Food and Drink

GET a *good sound sleep* every night —every nerve, every muscle relaxed—and Nature will fill your body with new energy, and wake you up fit and fine.

Every muscle relaxed! No one can sleep perfectly with nerves on edge or muscles tense.

This is the reason why doctors are urging *Twin Beds*—so one sleeper will not disturb the other, or communicate a cold or other infection.

The reason, too, why you should be sure your bed is *noiseless*. Just the little creak of a wooden bed, or the rattle of an ordinary metal bed, is enough to put the nerves on edge, even though it may not actually wake you up.

* * *

The truly *noiseless* Bed is the Simmons Metal Bed—*built for sleep.*

Just as the truly *sleep-inducing* Spring is a Simmons Spring—a fine resilient spring that invites the body to *relax.*

Years ago Simmons Company established the principle of Beds and Springs *built for sleep.*

It is today the largest maker of fine Metal Beds and Springs in the world.

It is a specialist in *Twin Beds*—a pioneer in that fine modern principle of a separate bed for each sleeper.

* * *

Simmons Metal Beds and Springs are the most sought after sleeping equipment in leading stores all over the country.

The prices are little if any higher than for ordinary beds.

And when you are selecting your Simmons Beds with an eye to their appearance in the room, you will see that Simmons has for the first time established *beautiful and authoritative design* in Metal Beds.

Sleep is a big subject! Write us for the brochure, "What Leading Medical Journals and Health Magazines Say about Separate Beds and Sound Sleep."

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

HYCLORITE

Concentrated Sodium Hypochlorite Solution

ALWAYS READY—Just add water. No time lost—no waste.

RAPID SOLVENT of pus and necrosed tissue. High germicidal power.

Used FULL STRENGTH or DILUTED according to surgeon's need. Successful WITHOUT Carrel technic. Makes correct DAKIN solution in one minute.

Accepted by A. M. A. (N. N. R.)

Sample and literature on request

GENERAL LABORATORIES

4618 Dickinson St.
Madison, Wisconsin

Electrically Lighted Surgical Instruments

Twenty years in the manufacture of electrically lighted surgical instruments, if it has not brought perfection in instrument construction, at least has kept the Electro Surgical Instrument Company abreast of the advances made by leading specialists of the medical and surgical profession.

So it is that instruments stamped "E. S. I. Co." speak of the accomplishments of the noted men whose suggestions are embodied in their construction and a service of maintenance possible only in instruments of our manufacture.

Users of instruments stamped "E. S. I. Co." are certain sharers in this service.

Origination begets imitation. Be sure of our exact name.

Illustrated Catalogue Sent Upon Request

ELECTRO SURGICAL INSTRUMENT COMPANY

Rochester, N. Y.

(Continued from page 26)

BULLETIN ON WAR RISK INSURANCE

The Bureau of War Risk Insurance has recently issued a bulletin as a guide to injured men stating that

"No compensation is payable unless the disability or death can be traced to an injury or a disease incurred in the service.

"Many persons, however, have received injuries or contracted disease in the service and the ill effects thereof do not appear until some time after their discharge or resignation. If the disability resulting from the injury or disease contracted in the service does not occur before one year after discharge or resignation you may be unable to obtain compensation, for the law provides that when such disability or death occurs as shown by the medical evidence after one year after your discharge, a certificate of injury must have been obtained from the Director of the Bureau, within the year from the date of your discharge in order that the government may pay you, or your dependents.

"If you were injured or contracted disease while in the service, even though the injury or disease was of a minor character, be sure to apply for a certificate of injury before one year after the date of your discharge or resignation in order to protect yourself and your dependents. Act now."

EDUCATION FOR MOTHERHOOD

The next step in the campaign for infant welfare, according to Dr. Isaac W. Brewer, is the education of the women of the nation for motherhood. The trouble with welfare stations, he says, in the *Boston Medical and Surgical Journal* of March 11, is that few mothers apply to the station until the health of the child has already been injured. The ideal aimed at should be to make an efficient course on the care of the child an integral part of the education of every woman. It is doubtful if necessary instruction can be added to the school course for some years to come. To supply the need, the various infant welfare stations should become teaching centers by receiving a limited number of young women as helpers who, while helping, would gain a practical knowledge of the care of a child. The infant mortality in this country is greatly in excess of what it should be in an enlightened community where proper educational and preventive measures obtain.

HYGIENE FOR WORKERS

It has been demonstrated that careful medical supervision in industry reduces absenteeism and turn-over according to Dr. Cecil K. Drinker of the Harvard Medical School, who stated recently:

"It is impossible to obtain such benefits without aiding equally and materially both the employer and the employee, and it is to this end that industrial medicine must be organized. If the return is one-sided, either for the employer or the employee, real success is not being obtained."

The growth of the practice of industrial medicine in the United States has been constant and rapid. At the present, approximately one thousand firms are known to be employing full-time or part-time physicians, and every day witnesses the institution of medical work in more and more factories. "That the health of the working population will eventually be both safeguarded and improved by such progress is very certain."

(Continued on page 30)

Hay Fever Prophylaxis

The uniform stability and antigenic activity of the product employed is of utmost importance

Pollen Antigen

Lederle

is so prepared that it's antigenic activity is accurately determined and so preserved that it's stability is assured

Complete Data Upon Request

Lederle Antitoxin Laboratories
511 Fifth Avenue, New York.

COLLECTING POLLEN FROM FLOWERING PLANTS
Lederle Antitoxin Laboratories

No Unbroken Food Cells

Steam-Exploded Wheat

Here is whole wheat, fitted, as never before, for easy, complete digestion.

The grains are steam-exploded —shot from guns. They get an hour of fearful heat—550 degrees. The moisture in each food cell is thus changed to steam.

When the guns are shot, that steam explodes. Each of the 125 million food cells is exploded separately. Thus every granule of the whole wheat is fitted to easily digest.

Ordinary cooking breaks but part of the food cells. This method breaks them all.

Puffed Rice is whole rice puffed in like way. Corn Puffs are pellets of hominy puffed.

Where ease of digestion must be considered, these are the ideal grain foods. They are also the most delightful grain foods that anyone ever tasted.

The Quaker Oats Company
Chicago

Puffed Wheat
Puffed Rice
Corn Puffs

3283

(Continued from page 28)

MEDICAL COLLEGE ADMITS WOMEN

For the first time in its history, women have been enrolled in the Medical College of New York University. They will have equal privileges with the men, will work in the same laboratories and clinics, and will receive their degrees after completion of the same curriculum. The location of the college gives students an opportunity to deal with health problems as it is in close proximity to Bellevue Hospital, the largest public hospital in the world. They are permitted to attend the hospital clinics and assist the attending physicians in dispensaries.

LEAGUE OF RED CROS SOCIETIES

The General Conference of the League of Red Cross Societies held in Geneva in March declared as its objective "the prevention and maelioration of those ever present tragedies of unnecessary sickness and death which occur in the homes of all people." Especially are its activities t obe directed toward restricting and preventing those diseases which are due to ignorance and lack of application of well established principles and practices which will contribute to health and welfare.

The program outlined by the medical section embraces the most important features of the care and welfare of mothers and children, the treatment and control of tuberculosis and other infectious and contagious diseases, the improvement of sanitation, the standardization of vital statistics, and the encouragement of the development of scientific stury along practical linesh affecting public health. In expressing the purpose of the League the report says it is endeavored to convey the spirit of this Conference. which strives for nothing less than for the improvement of the health and physical welfare of mankind. Immense labors are before us, but our path is now clearly defined. We have found here a true unity of purpose. We have been thinking and feeling in larger terms than those of national egotism. We have felt something of that universal kinship which could not find content in the well-benig of a particular people alone. We have seen also more clearly than ever before that the health of one people is related to the health of all; that as the germ recognizes no frontiers neither should the prevention and the cure.

MENTAL HYGIENE IN INDUSTRY

There is reported in the January issue of *Mental Hygiene* a report compiled by the late E. E. Southard, of a research being conducted by the Engineering Foundation of New York, preliminary to the movement for mental hygiene in industry. The program of mental hygiene in industry has grown out of the application of the modern conceptions of public health to industry. Reasons for unrest are traced to distinct psychic types. The practical handling of peculiar types, psychologic tests for personnel, the persons of consulted psychology, "grievance specialists,"—all make for industrial betterment.

The recent improvements in employment management and all activities dealing with industrial personnel show that industry is ready for the new movement, and employment managers everywhere are displaying the keenest interest in the new ideas.

Mental hygiene is nothing new in essence, but today's contribution is its organization for a systematic attack on industrial personnel problems.

(Continued on page 32)

SLEEP—The "Let-Down" That Builds Up

Neither food nor drink nor climatic change equals sleep as a health preserving agent. Spent energy can be adequately renewed only when complete relaxation is experienced.

Nature demands a "let-down" every so often in the mental and physical activities of every individual. If this "let-down" fails to come during the sleep period, it must come during the work period, when every minute costs money, when every second lost means delayed production, when dull, listless action means a sagging of efficiency. A brain befogged by fatigue cannot hope to produce a masterpiece of workmanship—nor its full quota of effort.

Sleep without relaxation does not restore efficiency. Complete rest does.

The Sealy Mattress provides "balanced" support and that relaxful quality of sleep so indispensable to nightly recuperation and daily vigor.

This comforting tuftless mattress, consisting of an inseparably air woven, single batt of long fibre cotton, "gives" readily at those points where the body rests heaviest. It rises soothingly to fill in and support the arches of the back and other parts of the body.

Physicians, hygienists and public health officials who have investigated the Sealy have found that it meets every requirement of hygienic design, sanitary construction and physiologically correct service.

SEALY MATTRESS COMPANY

Sugar Land, Texas

Note the Variety of Uses Afforded by the

ThermoLite
LIGHT AND HEAT INFUSER

Most therapeutic lamps designed for office or clinical use have a single large reflector with a high powered lamp in the center. This does not permit much adjustment in the intensity or illuminating area in front of the reflector, whereas with the **ThermoLite** (Triplex Type) the light can be projected in a curved or straight line, concentrated or diffused, to any degree, and all without focusing the rays.

Delivers Radiant Light and Heat in PARALLEL Rays

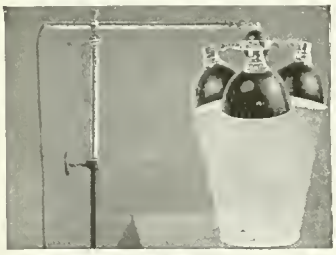
EXTREMELY EFFECTIVE IN THE TREATMENT OF

Neuralgia	Gastralgia	Rheumatism
Arthritis	Earache	Lumbago
Dermatitis	Laryngitis	Neuritis
Dismenorrhea	Mumps	Ulcers
Shingles	Bronchitis	Cystitis

and many other conditions.

Showing **Triplex** in lineal adjustment for spinal application.

The industrial clinic or hospital equipped with this scientifically designed therapeutic lamp can quickly relieve many conditions which otherwise would cause lay-offs of workmen and consequent reduction in industrial production.



Showing **Triplex** adjusted for concentrated application without focusing rays.

The delivery of radiant energy in parallel rays affords deep penetration, thus reducing inflammation and promoting healing in a most efficacious manner.

Showing use of **Simplex** (single lamp).

Send for prices and free book, "Photo-therapy."

ThermoLite is supplied in two forms—the **Triplex** for hospital clinics and office use, and **Simplex** (single lamp with or without stand) for home use.

H. G. McFaddin & Co.
39 Warren St., New York City

(Continued from page 30)

NEW SYSTEM OF VOCATIONAL GUIDANCE

Dartmouth College proposes to give college boys a knowledge of their aptitude. Psychological aids will determine their types and their general grades of intelligence. A system of condensed records will follow their progress and note variations or affirmations of the traits identified. In this manner it will in many instances be possible to determine very easily the line of work that offers them the best chance of success.

As the work develops it will become possible to give the employer who is in search of recruits from the college complete and accurate information of candidates for positions. Such vocational guidance differs from vocational training, and the system obviously enables the application of physical and mental corrections and stimuli as they may be needed.

WAR METHODS IN CIVIL PRACTICE

In an address before the clinical section of the Royal Society of Medicine, reported in *The Lancet* of January 17, 1920, Sir Anthony Bowlby discusses the treatment of shock, choice of anesthetic, the handling of fractures and wound infections and antiseptics—all from the angle of the value of certain developments in war surgery applied to civil practice. Whatever we may have learned from the war, says Bowlby, there is inevitably much more to be learned in the near future. Without doubt the civilian surgeon will work even more with the bacteriologist than he did before the war. Transportation and first aid service for the wounded in civil life should be better provided for. Shock can be better treated and often can be prevented. Anesthetics can be rendered safer. No antiseptic can at once sterilize infected wounds. Delayed suture is an important advance in surgical technic, and suppurating wounds can be treated by improved methods.

American Medico-Psychological Association

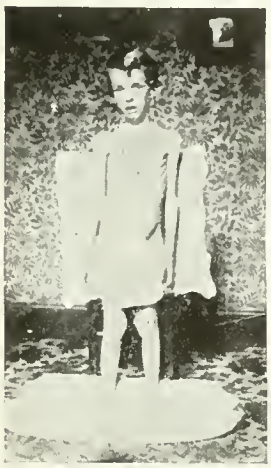
The annual meeting of the American Medico-Psychological Association was held in Cleveland, O., June 1 to 4, 1920. The program is well arranged to cover such special questions of administrative management and the technical side of the proper care of the psychopathic case, with due consideration of underlying causes, whether psychogenic or due to organic disease.

The awakened interest in the problem of the feeble-minded is shown by the discussions assigned to health workers in other fields, by the study of out-patient and dispensary clinics, by the important topics under the mental hygiene sessions. William A. White made a notable argument for the development of a program of mental hygiene of childhood. W. B. Cornell, Albany, N. Y., advocated the extension of individual mental hygiene to meet the urgent need of group mental hygiene to combat the present day mental ills of the group.

The papers presented in the Section of Clinical Psychiatry dealt with many phases of the question, notably the "Classification of Neuroses and Psychoses According to Their Affective Mechanisms," by Edward J. Kempf, M.D., Washington, D. C.; "Malingering and Simulated Disease," by Tom A. Williams, M.D., Washington, D. C.; the "Region of Psychopathology," by William A. White, M.D., Washington, D. C.; "Physiological Psychiatry," by Seymour DeWitt Ludlum, M.D., Philadelphia; and "New Speech Signs in General Paralysis," by Walter B. Swift, M.D., Boston, Mass.

(Continued on page 34)

ACUTE SUMMER DIARRHOEA



A virulent epidemic of diarrhoea swept Portsmouth. Several sufferers barely survived the first day. This boy of six was emaciated by persistent vomiting and copious, bloody evacuations.

When the virulence of the attack ceased, the doctor prescribed and continued VIROL for several months. This photograph was taken six months after the first.

THE role played by Virol in the treatment of infective diarrhoea has been elucidated by remarkable recent researches upon phagocytosis.

There can be no reasonable doubt but that the marvelous results produced by virolizing the diet of both breast- and bottle-fed children are due to the opsoninogenic properties of the preparation.

It has been conclusively proved that the addition of Virol under suitable conditions enormously stimulates the phagocytic powers of the white blood cells.

Virol is composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars: 50c, $1.00 and $2.00.

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

Virol

More than 2,000 Hospitals and Infant Welfare Societies use VIROL in Great Britain

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

MERCK & CO. NEW YORK · CHEMICAL WORKS, RAHWAY, N.J. · MERCK

On Prescriptions—

Merck's

Anusol
HEMORRHOIDAL
Suppositories

Of course, there will always be Hemorrhoid cases that will yield to the knife only.

But isn't the verdict "operation" very often returned a little too readily?

Whenever possible, suspend sentence until Anusol Suppositories have been given a chance.

Sample on request

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX WHITE, RED AND BLACK LABEL AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

(Continued from page 32)

RATING OF BODILY MECHANICS

A physical examination of the first year Harvard men by Roger I. Lee, professor of hygiene, disclosed bad postures in 80 per cent and only 0.97 per cent were rated as having a good mechanical use of the body; 34.8 per cent used their bodies very badly.

"To be sure," says Dr. Lee, "their poor bodily mechanics is offset by youth and a physical condition otherwise good, but the result of this test certainly suggests that our preparatory schools might do much toward preventing poor habits of bodily use, and also that it is desirable for the college to undertake correction."

The good results of enlightment noted in the almost uniformly good condition of the teeth and the universal correction of ocular defects promise correction through physical education to bring to their best development the postural defects in these young men otherwise organically sound.

MORE FIELD AGENTS FOR HOSPITALS

Pursuant to a recommendation of the Hospital Development Commission, of New York, provision is made in the Appropriation Bill, recently introduced in the Legislature, for increasing the number of field agents in the State hospitals for the insane to the ratio of 1 to each 100 patients on parole, making 21 instead of 13 as at present.

One field agent for each of the State institutions for the feeble-minded is also provided.

The Development Commission's recommendation that the position of Director of Prevention and After Care be created to supervise the clinics and social workers was not acted upon favorably this year. It is hoped that this very necessary position will be created next year.

KANSAS A HEALTH RESORT

Kansas Health Figures for 1919 points out the fact that Kansas may go out and do some special advertising as a health resort. Dr. S. J. Crumbine, secretary of the state board of health, took the Kansas health figures for 1919 and made some interesting comparisons with the records of the government's registration area, covering those states where the death reports are regarded as absolutely accurate.

Improved sanitary conditions, anti-typhoid vaccination, and the vigorous preaching of common sense health rules to young mothers through the child hygiene bureau are given credit for the slumps in the typhoid and enteritis death rates.

The Kansas death rate from tuberculosis, heart disease, Bright's disease and even cancer is below that of the registration area by a considerable margin, and has been for several years. The rate is figured on deaths to every hundred thousand of population, and Kansas reported 112.4 for organic heart disease while the area reported 153.2. On tuberculosis Kansas showed a rate of 58.6 while the registration area reported 146.4.

For years Kansas was lagging behind the other states in the fight on typhoid fever. In 1917, the Kansas death rate was 19.2, while the registration area rate was 13.4. But last year the Kansas rate dropped to 7.7.

"The enteritis deaths, among infants less than two years old, always had been too high, but that condition prevailed over the entire country. Kansas was no exception. The number of deaths of infants from this cause has been almost cut in two in the last two years."

(Continued on page 36)

An Improved Arsenical

MON-ARSONE

For The Treatment of Syphilis

BY USING Mon-Arsone you entirely eliminate the disadvantages of arsphenamine without sacrificing any therapeutic value, for Mon-Arsone (disodiummonoethylarsone), a new and strictly ethical compound of arsenic, is non-toxic, non-corrosive and is supplied in a stable solution ready to inject.

So marked is Mon-Arsone's lack of toxicity that it has been administered in many cases of total arsphenamine intolerance without causing the slightest reaction while necrosis of the tissue never follows accidental extravasation from the vein.

From the important standpoint of therapeutic value, Mon-Arsone has been proved not only at least equal to arsphenamine but many cases are reported where clinical symptoms and the Wassermann have yielded even more promptly after treatment with Mon-Arsone than with arsphenamine.

A rapidly increasing number of physicians and hospitals have adopted Mon-Arsone exclusively. Can you afford to ignore its advantages?

Your orders will have our prompt attention.

The Harmer Laboratories Co. Philadelphia, Pa.

How About Infant Feeding This Summer?

You know what to expect in your baby cases when warm weather comes on. Bowel troubles and stomach upsets are sure to happen. You appreciate the need of the proper corrective element in the food formulas you specify. Have you tried

Mead's Dextri-Maltose

Prepared in three forms to meet specific feeding requirements and assist in **individual feeding?**

No. 1—With 2% Sodium Chloride. Of great value in feeding infants recovering from diarrhoea or with diarrhoeal predisposition.

No. 2—Unsalted—permitting the addition of salts as desired by the prescribing physician.

No. 3—Same as No. 2, plus Potassium Carbonate 2%. A corrective of constipation. Changes the calcium caseinate of cow's milk into a potassium caseinate. The curd is rendered soft, flocculent and soluble, hence properly digested and resulting in a soft stool that is easily expelled.

These three forms of Dextri-Maltose are offered for use in feeding formulas prescribed by the physician.

Shall we send you samples and literature pertinent to summer feeding conditions?

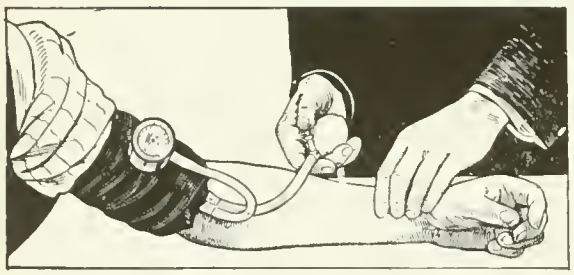
The Mead Johnson Policy

Mead's Dextri-Maltose is advertised only to the Medical Profession. No feeding directions accompany trade packages. Information regarding its use reaches the mother only by written instructions from her doctor on his own private prescription blank.

MEAD JOHNSON & CO., 304 St. Joseph Ave., Evansville, Ind.

Six Reasons for Using a

SANBORN BLOOD PRESSURE OUTFIT



ACCURACY

Guaranteed to possess and maintain the full measure of accuracy demanded by the most careful practitioners.

DURABILITY

A hard-to-hurt gage. Ordinary jolts mean nothing in its life, yet it registers the slightest pressure.

SANBORN SERVICE

A free service which keeps the instrument in constant adjustment. Tests as often as desired. Service outfits furnished while instrument is being repaired in case of accident.

GUARANTEE

No time limit on guarantee against defects in workmanship or materials. Such faults corrected free of charge regardless of length of time instrument has been in service.

FREE TRIAL

Sent to reputable physicians for trial in actual practice. No advance payment required.

ECONOMY

By selling direct to physicians, we are enabled to price the Sanborn 30 per cent below similar outfits on the market.

PRICE, $17.50

Why not mail the coupon now and find real sphygmomanometer satisfaction?

Sanborn Company

79 Sudbury Street

Boston 14, Mass.

You may send me a Sanborn Blood Pressure Outfit for trial. I shall return it if not satisfied.

If I keep it, I'll remit $17.50.

Name .....

Address .....

BOOKS RECEIVED

(Continued from page 34)

STUDIES IN MALARIA. By Hugh Stott, M.B., B.S. (Lond.), Captain, I.M.S., licentiate of the Royal College of Physicians of London; member of the Royal College of Surgeons of England; Fellow of the Royal Society of Medicine; surgeon to His Excellency, the Governor of Madras. Cloth, 8vo, pp. 190, illustrated. Thacker, Spink & Co., Calcutta, 1916.

ESSENTIALS OF SURGERY. A Textbook of Surgery for Student and Graduate Nurses and for Those Interested in the Care of the Sick. By Archibald Leete McDonald M.D., the Johns Hopkins University; formerly in charge of the department of anatomy, University of North Dakota; lecturer on surgery, Nurses Training School, St. Luke's Hospital, Duluth, Minn. Cloth, 8vo, pp. 265, illustrated. J. B. Lippincott Company, Philadelphia, 1919.

INDUSTRIAL MEDICINE AND SURGERY. By Harry E. Mock, B.S., M.D., F.A.C.S., assistant professor of industrial medicine and surgery at Rush Medical College; attending surgeon St. Luke's Hospital; visiting surgeon to Washington Boulevard Hospital; chief surgeon to Sears, Roebuck & Co.; Fellow Institute of Medicine, Chicago; Lieutenant Colonel, Medical Corps, U. S. A. Cloth, 8vo, pp. 846, illustrated. W. B. Saunders Company, Philadelphia, 1919.

MENTALLY DEFICIENT CHILDREN, Their Treatment and Training. By G. E. Shuttleworth, B.A., M.D.; Fellow Kings College, London; consulting physician (formerly medical superintendent) Royal Albert Institution, Lancaster, for the Feeble-Minded of the Northern Counties; and W. A. Potts, M.A., M.D., medical officer of the Birmingham Committee for the Care of the Mentally Deficient. Cloth, 8vo, 4th Ed., pp. 284, illustracted. P. Blakiston's Sons & Co., Philadelphia, 1916.

ORTHOPEDIC AND RECONSTRUCTION SURGERY, Industrial and Civilian. By Fred H. Albee, A.B., M.D., Sc.D., F.A.C.S.; Lieutenant Colonel, M.C., U. S. A.; professor and director of Department of Orthopedic Surgery, New York Post-Graduate Medical School and University of Vermont; chairman Rehabilitation Commission of the State of New Jersey; member of Advisory Orthopedic Council to the Surgeon General. Cloth, 8vo, pp. 1.138, illustrated. W. B. Saunders Company, Philadelphia, 1919.

A TEXTBOOK OF CHEMISTRY FOR NURSES. By Fredus N. Peters, A.M., Ph.D., author of "Experimental Chemistry," "Laboratory Experiments," "Modern Chemistry," etc.; formerly professor of chemistry and director of laboratories, Kansas City College of Pharmacy; professor of organic chemistry, Hahneman Medical College; director of laboratories and professor of chemistry and metallurgy, Kansas City Dental College; head of science department, Kansas City Central High School. Cloth, 8vo, pp. 302, illustrated. C. V. Mosby Company, St. Louis, 1919.

PENSIONS AND THE PRINCIPLES OF THEIR EVALUATION. By Llewellyn J. Llewellyn, M.B. (London), late Temp. member appeals Tribunal Ministry of Pensions, senior physician and governor, Royal Mineral Water Hospital, Bath (Attached to Second Southern General Hospital), and A. Bassett Jones, M.B. (London), Temp. Captain, R.A.M.C., Military Orthopedic Hospital, Whitchurch, Cardiff, late Temp. Hon. Lieut., R.A.M.C., Welsh Hospital Netley, etc Cloth, 8vo, pp. 702. C. V. Mosby Company, St. Louis, 1919.

THE BIOLOGY OF THE BLOOD CELLS. With a Glossary of Hematological Terms. For the Use of Practitioners of Medicine. By O. C. Gruner, M.D., Lond., author of "Studies in Puncture-Fluids"; "A Code System for the Hospital Pathologist"; pathologist to the Royal Victoria Hospital and to the Maternity Hospital, Montreal; assistant professor of pathology, McGill University, Montreal; late clinical pathologist, General Infirmary at Leeds. Cloth, 8vo, pp. 392 illustrated. 21/. net. John Wright and Sons, Ltd., Bristol, 1913.

(Continued on page 38)

Arsenic and Mercury are Indispensable in the Treatment of Syphilis

We recommend

SALVARSAN or NEOSALVARSAN

(Arsphenamine-Metz) (Neoarsphenamine-Metz)

powerful and easily administered spirochetecides, which are as efficacious as the imported products,

and

BICHLORIDOL or SALICIDOL

(Mercury Bichloride) (Mercury Salicylate)

put up in **COLLAPSULES** (compressible ampules), which insure absolute accuracy of dosage with absence of pain after intramuscular injection.

This combination of anti-luetics has no superior in the therapeutic field. Literature upon application to

H. A. METZ LABORATORIES, Inc.

122 HUDSON STREET,
NEW YORK

The Coffee Problem

We have solved the Coffee problem for Hospitals, Sanitariums and other institutions in our coffee plant. It is a large factor in our ability to supply a standardized product—to maintain a uniformity in the roasting and blending processes whereby we can meet continuously and confidently the requirements of our customers for coffees which they have found to their liking and in which they wish no variation as they purchase from time to time.

Many of our customers simply say: "Send us another drum of our coffee." Our records show what is wanted in each case, and our method enables us to duplicate exactly every time. This is our coffee standardization plan, by which we render a reliable and pleasing service.

Roasting and Cooling.

Grinding and Packing.

Bins for Various Blends.

ARISTON COFFEE-CEREAL BLENDS

And don't forget our Ariston Coffee-Cereal Blends, whereby we provide you a perfect coffee beverage (not in any sense a substitute), with real food value, reduced caffeine content, and at a substantial price saving. Only by trial can you know the merit of these blends, which are especially valuable for hospital use in serving patients who ought not to drink straight coffee.

Furnished in the following blends:

Ariston Coffee-Cereal Blend, No. 1, per lb.	$0.38
Ariston Coffee-Cereal Blend, No. 2, per lb.	.36
Ariston Coffee-Cereal Blend, No. 3, per lb.	.34
Ariston Coffee-Cereal Blend, No. 4, per lb.	.32
Ariston Coffee-Cereal Blend, No. 5, per lb.	.30

Let us ship you a trial order of 100 pounds. We guarantee the goods. If not satisfactory ship back at our expense.

CALUMET TEA & COFFEE COMPANY

409-411 W. HURON ST. CHICAGO

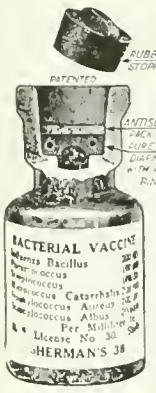
5-20

Notice

SHERMAN'S VACCINES

Are now supplied in a new 10 mil. (C. C.) container

This package has many superior features which assure asepsis, prevent leakage and faciliate the removal of contents. It is constructed on the well known Sherman principle.



10 Mil. (c.c.)

Twenty Preparations.

Beyond the experimental stage.

Millions of doses have been administered.

The vial is amply strong which prevents breakage so frequent with shell vials.

We are exclusive and pioneer producers of Bacterial Vaccines. Originators of the aseptic bulk package. Pioneer in elucidation, experimentation and clinical demonstration.

The largest producers of Stock and Autogenous Bacterial Vaccines.

MANUFACTURER OF BACTERIAL VACCINES

G. H. SHERMAN, M.D.

Detroit, Mich. U.S.A.

"Sherman's Vaccines are dependable Antigens."

BOOKS RECEIVED

(Continued from page 36)

THE DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. Stitt, A.B., Ph.G., M.D., LL.D.; Rear Admiral, Medical Corps, United States Navy; Commanding Officer and Head of Department of Tropical Medicine, United States Naval School; graduate, London School of Tropical Medicine; professor of tropical medicine, Georgetown University; professor of tropical medicine, George Washington University, etc. Cloth, 8vo, pp. 534, 3rd Ed., illustrated. P. Blakiston's Son & Co., Philadelphia, 1919.

PHYSICAL DIAGNOSIS. By Richard C. Cabot, M.D., professor of medicine in Harvard University; chief of the West Medical Service at the Massachusetts General Hospital. Cloth, 8vo, 7th Ed., pp. 527, illustrated. William Wood & Co., New York, 1919.

HEALTH THROUGH WILL POWER. By James J. Walsh, M.D., Ph.D., Sc.D., medical director of Fordham University School of Sociology; professor of Physiological Psychology at Cathedral College; lecturer of Psychology, Marywood College, etc. Coth, 8vo, pp. 228. Little Brown & Co., Boston, 1919.

HYGIENE AND SANITATION. By Seneca Egbert, A.M., M.D., professor of hygiene, University of Pennsylvania; formerly professor of hygiene and dean of the Medico-Chirurgical College; sometime Major, Medical Corps, United States Army. Cloth, 8vo, 7th Ed., Rev., pp. 554, illustrated. Lea & Febiger, Philadelphia, 1919.

ELEMENTARY BACTERIOLOGY AND PROTOZOÖLOGY. For the Use of Nurses. By Herbert Fox, M.D., director of the William Pepper Laboratory of Clinical Medicine in the University of Pennsylvania; pathologist to the Zoological Society of Philadelphia, etc.; Major, M.C., U.S.A. Cloth, 8vo, 3rd edition, pp. 222, illustrated. Lea & Febiger, New York, 1919.

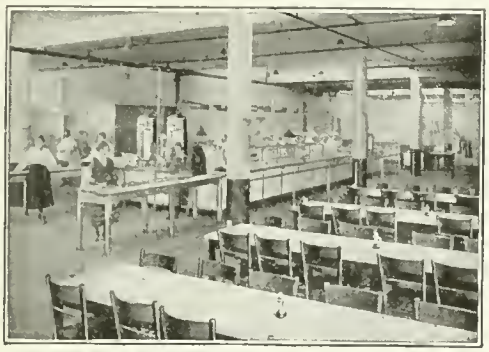
A TEXT BOOK OF UROLOGY IN MEN, WOMEN, AND CHILDREN, Including Urinary and Sexual Infections, Urethroscopy, and Cystoscopy. By Victor Cox Pedersen, M.D., F.A.C.S., consulting physician to Selective Service, Headquarters New York; visiting urologist to St. Mark's Hospital, etc. Cloth, 8vo, pp. 991, illustrated. Lea & Febiger, Philadelphia, 1919.

DEMENTIA PRAECOX AND PARAPHRENIA. By Professor Emil Kraepelin of Munich. Translated by R. Mary Barclay, M.A., M.B., from the eighth German edition of the "Textbook of Psychiatry," vol iii, part II, section on the Endogenous Dementias. Edited by George M. Robertson, M.D., F.R.C.P. (Edin.), lecturer on mental diseases in the University of Edinburgh and Physician to the Royal Asylum, Morningside. Cloth, 8vo, pp. 331, illustrated. E. & S. Livingstone, Edinburgh, 1919.

MILITARY OPHTHALMIC SURGERY. By Allen Greenwood, M.D., Lieut. Colonel Medical Corps, U.S.A.; recently honorary Lieut. Colonel, Harvard Surgical Unit with the Royal Army Medical Corps, British Expeditionary Force. Including chapter on Trachoma, other contagious conjunctival diseases and gas conjunctivitis. By G. E. De Schweinitz, M.D., Lieut. Colonel, Medical Corps, U.S.A.; and a chapter on ocular malingering by Walter R. Parker, M.D., Colonel, Medical Corps, U.S.A. Cloth, 8vo, 2nd Ed., Rev., pp. 131, illustrated. Lea & Febiger Philadelphia, 1918.

SURGICAL APPLIED ANATOMY. By Sir Frederick Treves, Bart., G.C.V.O., C.B., LL.D., F.R.C., Eng., Sergeant Surgeon to H.M. the King; consulting surgeon to the London Hospital; late lecturer on anatomy at the London Hospital. Revised by Arthur Keith, M.D., LL.D., Aber., F.R.C.S., Eng., F.R.S., Hunterian Professor and Conservator of the Museum, Royal College of Surgeons of England; formerly lecturer on and senior demonstrator of anatomy at the London Hospital; examiner in the Universities of Aberdeen, Cambridge, etc.; and W. Colin Mackenzie, M.D., Melb., F.R.C.S., Edin., F.R.S.E., member of council of the Anatomical Society of Great Britain and Ireland; formerly lecturer on applied anatomy University of Melbourne. Cloth, 8vo, 7th Ed., pp. 702, illustrated. Lea & Febiger, Philadelphia.

(Continued on page 40)



Cafeterias and Lunch Rooms Are Common Sense Health Insurance

The physical and mental well-being of employes are important factors in the efficiency of every industry. Faulty nutrition is recognized as a detrimental condition for the satisfactory progress of school children, as well as preventing 100 per cent service from the employe. Properly conducted Cafeterias have proved their worth in bringing the individual up to par in both industries and schools.

Rest and Club Rooms, considered essential by many employers, add that element of good-will necessary for the complete co-operation of the employe.

As the largest Cafeteria and Lunch Room Equipment house, we are prepared to design a Cafeteria or Lunch Room to meet any special needs, or to advise on correct equipment and installation. Regardless of what is required, we can supply it—at a saving. We furnish everything for Rest Rooms or Industrial Clubs at a saving to you of time and money.

Successful installations all over the country testify to our ability in these lines. Let us assist you in the formulation of your plans.

Write for This Special Literature

Book G10—Lunch Room Book—Containing complete data on industrial Lunch Room installations.

Book G40—Rest Room Book—The whole story of the Rest Room.

Book G60—Employment Betterment—The story of what industrial welfare work means in actual results.

ALBERT PICK & COMPANY

208-224 WEST RANDOLPH STREET, CHICAGO, ILLINOIS

"I Know of No Better Device or Means of Restoring Respiration Than *The* LUNGMOTOR

"The instrument is simple in construction; it is fool proof and efficient."
Thus speaks

A Well-Known Industrial Physician*

Furthermore he says:

"On two different occasions I used it on two different patients for a shock during an operation. These patients had stopped breathing, marked cyanosis developed, and the pulse became very weak. Both were revived by the use of the Lungmotor. I feel confident that I saved the lives of five babies suffering from asphyxia neonatorum. I found it very useful in these cases."

The necessity of Lungmotor protection in your hospital—in your industrial plant, is evident from the large number of lives saved in other hospitals and plants with Lungmotors available.

The need may come tomorrow:—Be Ready:—Some day you are going to have Lungmotor protection. Perhaps after the next fatal accident, as 87% did last month. Why not that protection now and save that next life which might otherwise be lost?

"The Lungmotor and the Need of It" is the title of the New Booklet which is yours for the asking.

Lungmotor Company
711-C Boylston Street Boston, Mass.

*Name on request.

(Continued from page 38)

ANTI-TUBERCULOSIS FEDERATION

A conference for the purpose of forming an anti-tuberculosis federation will be held in Paris, France, next October, according to a decision recently reached by representatives of the American, British, and French societies in Paris.

MAKE USE OF STATE LABORATORY

The free laboratory facilities offered by the Ohio State Department of Health are being used more extensively now than ever before says a writer in the *Ohio State Medical Journal*. Wassermann work in particular has been gaining, examinations passing the 2,000 mark in one month. Diphtheria, tuberculosis, and typhoid examinations during the months of July, August, September, and October far exceeded those of last year.

DISABILITY FROM INJURIES TO THE BACK

The periods of disability are unusually long in persons whose backs are injured in industrial occupations, says Dr. James Warren Sever, in the November issue of the *Journal of Orthopedic Surgery*, reporting on a study of 134 cases. An analysis of 37 cases in which the injury resulted from falling (Class I) shows an average minimum period of disability of eleven months. In 31 cases injured by blows from falling objects (Class II) the average minimum period of disability was 14.7 months. Injury from strain was noted in 42 cases with an aver-

THE HEALTH OF WOMEN

"There is a vital need for educating women to a proper valuation of their health," says Dr. Augusta Rucker, a New York physician and director of the division of health of the social education department of the Young Women's Christian Association. "In examining 414 successful business women recently, not one measured up to normal. These are intelligent women who are fairly representative of health ideals."

The purpose of health centers being established by the Young Women's Christian Association is to "keep women well—to prevent ill health rather than cure it." Lack of exercise and faulty eating play the most havoc with girls' health nowadays, says Dr. Rucker.

HEALTH PROBLEMS IN EDUCATION

The report of the Committee on Health Problems in Education to the National Education Association constitutes what is practically a Philippic against the needless sacrifice of life and waste of human power because of the lack of constructive development of the potential health and fitness of the children of our Country. Only in a small percentage of the entire school population are the physical defects studied and recognized, and only in a fraction of these are the detrimental defects effectively corrected. The importance of these matters is not appreciated, says the report, and the real danger to the children of the land lies in the ignorance, irresponsibility of, and neglect by adults entrusted with their care.

Drafted by compulsory education into the schools, the children should be assured of skillful and satisfactory health care. The Committee places its emphasis on health education. Its publications consist of three pamphlet reports and fifty-eight health charts, with other publications under way on "Health Improvement in Rural Schools," and on standards for "Health Norms and Health Defects of School Children."

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2. JULY, 1920 Number 7

DEFECTIVE THERMOMETERS

THE Department of Health of New York City has been performing an important service in making an investigation of the clinical thermometers offered for sale and, also, of those used throughout the city by institutions, doctors and nurses. The startling fact was disclosed that a large percentage of the thermometers in use were defective. The department, therefore, calls for regulation of the clinical thermometers manufactured for use and in use and urges a national law or regulation to prevent dumping into other states of thermometers found defective in New York City.

It is a trite statement that a defective thermometer is worse than no thermometer. False security or false fears may be encouraged by a defective thermometer.

We do not know to what extent the condition reported by the New York Department is due to the deterioration of thermometers or to dishonest manufacture and sale, but whatever the cause, the remedy is clear. Steps should be taken without delay by individuals, physicians, nurses, and by local, state, and National authorities to see that all clinical thermometers in use are correct. Already the state of Massachusetts has taken steps with respect to the manufacture and sale of clinical thermometers and in that state all clinical thermometers sold must meet the requirements of the Bureau of Standards. This law has been vigorously enforced and conditions are decidedly improved in that state. Manufacturers who have refused to correct their careless or criminal methods of manufacture have been denied licenses to sell clinical thermometers in the state.

That the condition is more widespread than has generally been believed is evidenced by the action taken by the authorities of France and Great Britain during the war, prohibiting the importation of clinical thermometers that had not first passed official laboratory tests. The Army and the Navy, and the American Red Cross took similar action in respects to the thermometers used in military service.

Fortunately the situation is one which can be quickly and completely reformed by honest manufacturers and by physicians, nurses, and hospitals acting individually and through public authorities. The conditions disclosed are so inimical to the health of the people as to require immediate and drastic action.

HOSPITALIZATION OF DRUG ADDICTS

THE American Medical Association at its meeting in New Orleans went on record in opposition to the ambulatory treatment of drug addicts. In doing so, the Association gave expression to the fact which is well known among physicians that hospitalization is necessary during the time of cure and immediate after cure. The well known craftiness of drug addicts makes it clear to any one that reliance cannot be placed upon them unless they are under the strictest control and supervision.

The conclusions of the Department of Health of New York, where the subject has been as acute as anywhere in the country, are well worth quoting in support of the action taken by the American Medical Association. In a recent report the Department said:

Treatment of the narcotic drug addict by private physicians prescribing and druggists dispensing, while the individual is going about, is wrong. The giving of a narcotic drug into the possession of an addict for self-administration should be forbidden. Until this is done

by law, all honorable physicians should aid in stopping this vicious practice.

The case of drug addiction that can be cured by ambulatory treatment is the rare exception, and so unusual as to make one think it impossible.

Physicians generally are of the opinion that ambulatory treatment is not good practice, and few doctors use this form of treating addicts; so it is believed that those so doing must be either ignorant of proper methods, or do so in bad faith.

With the authority of the American Medical Association and the experience of the New York City Department of Health, physicians will scarcely need additional proof of the necessity of hospitalization of drug addicts.

CHILD WELFARE AND HEALTH

WE are offering in this issue of MODERN MEDICINE an article by Dr. A. Levinson of Chicago on "Inhibition, a Prime Motive in the Training of Children," which constitutes the third of a series of contributions developing a comprehensive view of child welfare in its relation to sociological and psychological problems.

Dr. Levinson is the author of a book on Cerebrospinal Fluid and is associate editor of an annual book on Pediatrics published by the Yearbook Company. He is associate in pediatrics at the Northwestern University Medical School, associate pediatrician at the Michael Reese Hospital of Chicago, attending physician to the children's department of the Chicago-Winfield Tuberculosis Sanatorium, and attending physician to the Mount Sinai Hospital of Chicago.

The article for the August issue will discuss the sociologic aspects of the tuberculosis problem in children. Other chapters will present the problems of the school child, of the mentally defective child, and of the adolescent. The articles will discuss mainly the sociological phases of the problems, and we therefore believe they will prove of definite value to health workers everywhere.

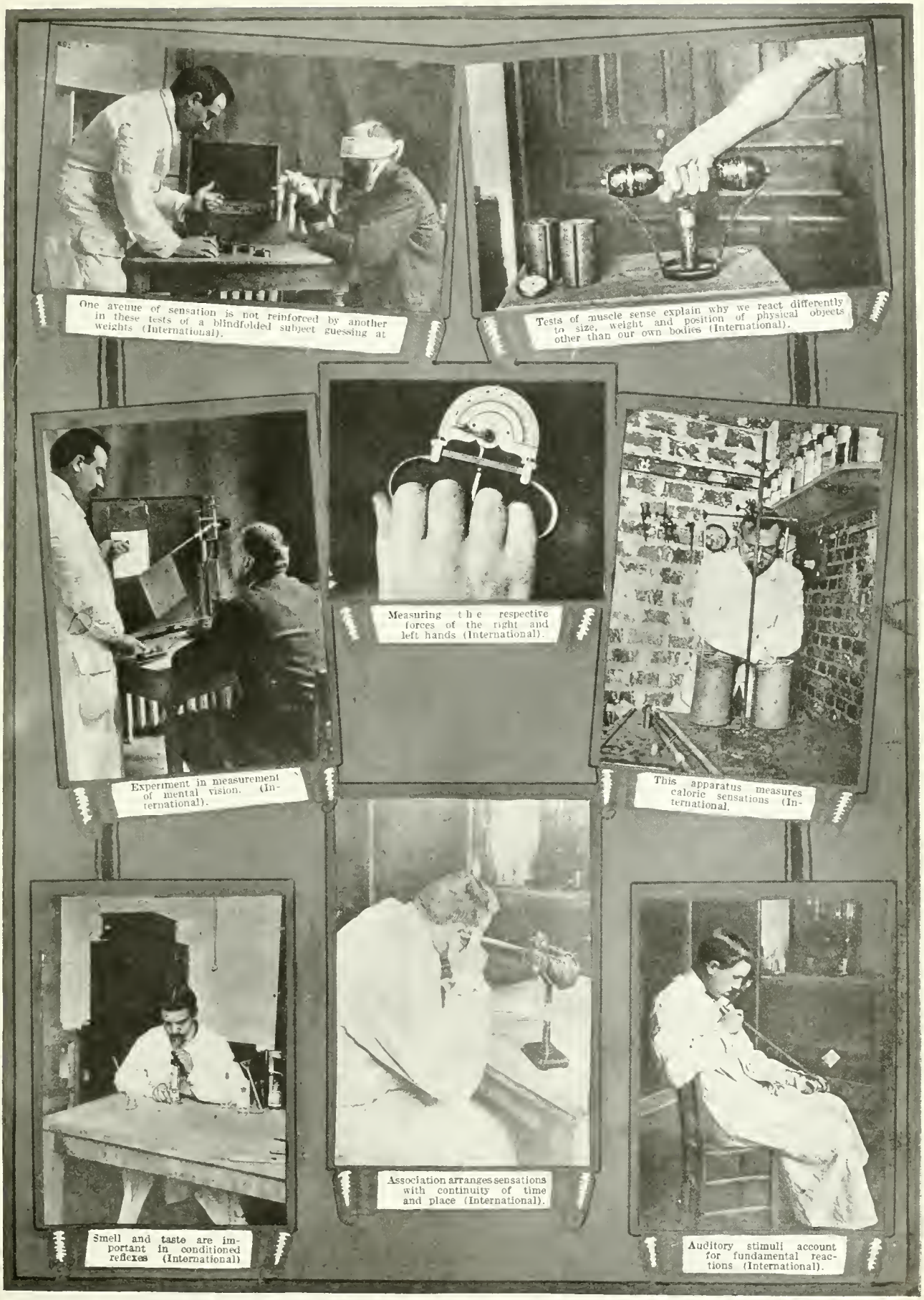
As the discussion in this series proceeds it becomes more and more apparent how numerous are the points involved in constructive work in this direction. The matter cannot be reduced to "pouring out stereotyped good advice on points of hygiene and diet." Racial factors are to be considered; the social background enters into the picture; hereditary traits and acquired habits are to be made serviceable, and aids to adjustment provided when necessary. That an adequate account of children's diseases is not confined merely to gross physical changes is particularly emphasized in this article on inhibitions. Habit distortions may arise in childhood that make later adaptations difficult if not impossible.

Pertinent to this discussion is the description given by Hector Charles Cameron, in his presidential address on maternity and child welfare work in England: "The medical officers of the welfare centers at present," according to Dr. Cameron, "are a heterogeneous body. Young and recently qualified officials, who know little of children in sickness and still less of children in health, whose opinion can carry little weight, either with the mothers or the health visitors; men skilled in general practice, who find the absence of pathological interest unstimulating; medical officers of health who, though very well versed in the study of faults in environment, have less knowledge of the common reactions of the child to these faults, and whose manifold duties permit them to maintain only nominal control over the health visitors, who are therefore left to pursue the work according to their own ideas:—none of these is likely to conduct the infants' center satisfactorily."

Gerald B. Webb, M.D., Colorado Springs, Colo., heads the National Tuberculosis Association.

Still less satisfactory is the perfunctory service of the young practitioner who attends the clinics while he is gaining experience in some other specialty which interests him more. There is no specialty more worthy of emphasis than the study of childhood. Undergraduate and postgraduate courses need to be offered so as to provide professional equipment. "We are not yet equal to our opportunities," continues Dr. Cameron. "To deal wisely and successfully with each mother and each child calls for professional gifts of the very highest order. To determine in each case where success is hanging in the balance; how far inherited tendencies or congenital weakness is responsible; how far dietetic errors; how far faults of management or handling; how far infection and of what parts—all this demands a wide experience." It is a subject difficult to learn, difficult to teach, difficult to write about; hence we offer these fruits of the wide experience of Dr. Levinson as a present help in a highly important field of endeavor.

S. P. M.



One avenue of sensation is not reinforced by another in these tests of a blindfolded subject guessing at weights (International).

Tests of muscle sense explain why we react differently to size, weight and position of physical objects other than our own bodies (International).

Measuring the respective forces of the right and left hands (International).

Experiment in measurement of mental vision. (International).

This apparatus measures caloric sensations (International.

Association arranges sensations with continuity of time and place (International).

Smell and taste are important in conditioned reflexes (International)

Auditory stimuli account for fundamental reactions (International).

MEASURE OF PERSONALITY

WHATEVER may be the realities of the external world, objects are interpreted to the human mind only in terms of the sensations registered on the sensori motor system which in turn become the stimuli to action. The attributes of objects are determined by the sensations they produce, and get their meanings from the manner in which we react to them. Personality becomes the sum total of such organized sense impressions, and behavior may be defined as individual reaction to environment. Psychologists were formerly reduced to introspection for the study of mind,—a method that led far afield; for the mental process to be observed changes when the attention is focused upon it, and a confusion resulted which caused the older psychologists to resort to mysticism or dualism to explain mental phenomena which have now come into the realm of the physical laboratory and, by means of sense instruments, can be accurately measured.

Sense impressions and their motor equivalents are registered by delicately adjusted apparatus; a study of the reflexes enables the detection of the nerve paths evolved in the process of learning; conditioned reflex methods show the relation of the emotions to the bodily secretions, and the service of physiologic functions of glands in emotional crises.

The work of Pavlow and Bechterew in Russian laboratories developed the appropriate stimuli for certain fundamental reflexes. Cannon, followed by Crile, has worked out very definitely the emergency functions of the endocrine glands. The organs of response have lately received the most systematic analysis and observation by Watson and his associates. Says Watson, "Could we bring thinking out for observation as readily as we can tennis playing or rowing, the need for 'explaining' it would disappear." Efforts have been made to bring such responses under experimental control, and thought as *implicit language habits*, issuing finally in overt action, has in Watson's laboratory been made to serve psychological requirements.

Vaughan has recently reviewed editorially the work of Lipkin on the specialized areas of the cortex, association areas, and coordinations, bringing out the present knowledge of the physiologic basis of memory. Consciousness arising at certain junctions and disjunctions, personality studies become the observations of a reacting mechanism and the materials of the psychological laboratory may be divested of theory and mysticism, thereby becoming definite and of immediate practical application. It is possible, therefore, to study the organism at work, to determine and adopt the best methods of acquiring serviceable habits, to devise working conditions that will largely eliminate fatigue, and to evaluate the "emotional and environmental changes that produce fluctuations in efficiency."

S. P. M.

INHIBITION, A PRIME MOTIVE IN CHILD TRAINING

By A. LEVINSON, Chicago

OF late, we have been hearing much about new ideas and new systems of education. Every inventor of a new system criticizes the old that he is attempting to supersede, and seeks to demonstrate wherein his plan is an improvement on the one in vogue at the present time. Most of the modern systems of education, beginning with Rousseau and ending with Montessori, have in common the one characteristic that they all insist on bringing out the individuality of the child, which they say should be permitted free play for its development. "Let the child develop his own ideas, and work them out according to his heart's desire," is their slogan. The teacher, say the most modern pedagogues, should be only an "observer" and not a disciplinarian. The same advice is given to the parents, who are warned against interference with the child's rights as an individual, and against repression of his natural instincts. A better, a more moral generation, is the result that the exponents of the "new" educational systems promise to those who obey their injunctions.

Need Protective Inhibitions

Does the end justify the means? Are not the children of our generation less moral, less kind, less capable than the children of generations ago? These and others are the questions necessarily asked by people who have made a comparative study of the old and new systems of education. It cannot be denied that former generations produced a better class of men who, morally at least, were greatly our superiors. It is a fact, too publicly aired to be contradicted, that divorces, holdups, and murders are greatly on the increase. Recent exposures have opened our eyes to the great numbers of our "pillars of society" who have turned out to be men and women devoid of all moral fiber.

What is the cause of this sociological phenomenon? To my mind only one explanation is to be offered and that is the lack of inhibition of the people of our generation, due to inefficient training of the inhibitory centers, a factor that used to play a great rôle in education years ago.

What is it that prevents a person from murdering or robbing or doing anything that his baser motives impel him to in moments of anger or madness? Many of us have such desires at times, in one form or another, but we check ourselves; we stop to deliberate; we "control" ourselves and our brutal impulses. It is lack of control that makes certain individuals act on the spur of the moment, and execute their actions immediately upon getting the impulse.

Whether or not we believe with Fleschig that there are association centers in the brain, one of which is the center of inhibition—self-control, attention, concentration, and volition,—we must admit that desires can be controlled by will, by restraint, and by training. We have but to look about us at some of the people we know to realize that it is very possible to keep within the "golden mean" in many things. When we admire them for what we term their self-control, we are at the same time paying tribute to the result of their training of their inhibitory centers. As for the value of inhibition, no one can doubt it. What would become of the world if there were universal lack of this means of control? It would swim in pools of blood about our feet. Nor do we need to limit our observation to outward actions to estimate the value of inhibition. Even the heart needs inhibition. Without inhibitory fibers the heart would run away with itself, the consequences of such an action being well known to every physician.

Of course there are exceptions to the rule of inhibition, as to any other rule; there are times, as for instance in the case of the rescue of a person from danger, when it is well that the inhibitory impulses are buried beneath the stronger impulse toward immediate action. The crises that demand these moments of heroism, however, are rare in the life of the ordinary man and woman, and such lack of inhibition may well be pardoned. In the world of ideas we meet with another exception—that of genius. A genius uses little inhibition when it comes to the expression of his ideas. As soon as the inspiration seizes him he hastens to express it to the world in a message in one form or another. "One of the impulses of genius," write Hogan, "is irresistible impulsion." One of the prophets of old voiced the same idea in the words: "There is a spirit in man, and who can overcome it." This lack of inhibition leads to a good end; and yet, whether or not we accept Lombroso's interpretation of genius in terms of insanity, some control of the inhibitory center must be insisted upon for the ordinary man even at the expense of losing a genius.

To develop men with control we must begin our work with the children. The brain at birth is especially weak in its inhibitory fibers. This explains in a measure why the infant urinates the minute the impulse is transmitted to its brain. It is, therefore, important for the mother to teach the child to ask for a vessel whenever necessary so that the child will not continue what becomes a bad habit if not restricted in time. With the development of the child comes a corresponding development of the inhibitory power, tending to self-control. This is in accord with the good old adage, "One good deed brings on another." It is the impressions made upon the brain that finally go to form a habit.

Years ago parents and teachers were aware of this fact and they made it their business to teach the children self-control together with the three "R's"; the mother would say to the child, "Sonny, don't go to the boiling pot, it is hot," and, to convince the child, she would blow the hot vapor so that he could see it. The teacher would follow up the teaching of inhibition by telling the child the right and wrong thing to do under the circumstances. And the child absorbed it all.

Now we go to the other extreme. The modern mother, true to the teachings of the modern educational texts, does not tell the child what to guard against. She leaves it to him to find out whether the pot is hot, or the revolver dangerous. Very often the child finds out all too soon by bitter experience.

Unless our parents and teachers arouse themselves to the realization of the value of inhibition as a factor in the education of the child, it is greatly to be feared that the future will produce many a rough example of self-developed individuals. At this very point it should be explained that we do not mean to say that teachers should tell their pupils all the evil they can think of and caution them against this and that. The mother who left her children with the injunction, "Whatever you do, don't put beans up your noses," soon discovered the mistake she had made in awakening a desire for something that would never have occurred to the children if left to themselves.

The teaching of inhibition is to begin at as early an age as possible. When the child begins to grab things from the table, when it speaks of mamma as "bad mamma,"—that is the time to enforce a little inhibition. As the child grows older, it is well and necessary to restrain it from over-eating, from eating too frequently, from snatching things that belong to others, from asking for pennies, and the like. By the time the child reaches the age of twelve or thirteen he will know that the first impulse is not always the best, will know that it is good to refrain from talking at times, and to think three times before speaking once. It is good for our boys and girls of adolescent age to know that not all passions, not all impulses are to have full sway. They will also know how to meet the many problems, how to fight out the internal struggles that developing years bring with them. The training of years will teach them how to face the problems that confront them, how to keep the reins in their hands, in short—how to control themselves. And the result of the conquest will be—better men and better women.

The Vltava (Moldau) River, Prague.

A PUBLIC HEALTH SURVEY OF PRAGUE, CZECHO-SLOVAKIA

By PHILIP S. PLATT, M.A., New Haven, Conn.

THE survey of the public health of Prague, Czecho-Slovakia, of which this article is a brief description, was made during portions of July, August, and September, 1919, while the author, then First Lieutenant, Sanitary Corps, U. S. A., was attached to the American Relief Administration, Prague, assisting in organizing the feeding of 600,000 especially under-nourished children, and in charge of the feeding of 50,000 children in and about Prague. It is a part of a social welfare survey of Prague, made under the direction of Miss Ruth Crawford of the Young Women's Christian Association, at the request of Dr. Alice Masaryk, president of the Czecho-Slovak Red Cross. It is appearing in Czech, with its five companion surveys, "The Social Care of the Individual, Women in Industry, Education, Recreation and the Church," at the expense and under the auspices of the Ministry of Social Welfare.

An Epoch Making Enterprise

Dr. Ladislav Procházka, the eminent health officer of Prague, in his preface to the survey writes of the new era in public health which is dawning for his country and of the part America is playing in this awakening:

This survey marks for us, the Czech hygienists, a certain epoch. Our contact with the outside world moved through German channels; our methods of public health research and analysis were German; and because our methods, after the German manner followed almost entirely the line of scientific research inadequate consideration was given to the needs of practical life, and practical hygiene suffered.

We had read and heard of American hygiene and the methods employed, but through personal contact we realized the full depth of difference. In the first place, there is the difference in people; the getting down to facts, the poise, the energy, the distaste for needless writing and talking, the firm resolve to see action and give real help, and a peculiar ability, almost stubborn, to penetrate to the very core of existing conditions in order to examine unhealthy roots where leaves are dying on trees. A difference between the attitude of our Republic and of the American state toward public health is also evident. In America the commonwealth and the citizens are absolutely convinced that public health constitutes an important factor in life and in public administration; this accounts for the splendid schools for hygiene, for social work, and for the training of nurses; this also explains the existence of their model institutions and hospitals, the donations of millions—which run into billions in our money—and the support given by individual men of wealth; out of this have grown the worthy and deeply grounded organizations, such as the Young Men's and Young Women's Christian Associations.

The opinion which was built upon the deep foundation of careful study, information and five months' work among us by an American expert is a gift to us and stands as an example of how to consider public health. Our fervent hope is that public health in this country may receive the great attention given it in America; that such men of energy, depth and warmth of feeling may be fully trained for expert work and be consecrated to public work as is the man who speaks through the pages of this survey.

America has showered our Republic with gifts. Quietly, without useless talking, she saved tens of thousands—perhaps hundreds of thousands—of children; she dried the rivers of tears; she removed from the heart the care as heavy as millstones with her huge gifts of clothing,

To the right is shown the National Opera House as it appears from the Vltava River. Below appears the old palace of the kings of Bohemia surrounding St. Vitus Cathedral. These pictures suggest little of the national housecleaning, both municipal and national, necessary at the close of the war. Twenty-seven girls were selected from the Czech-American summer school for social workers for intensive training according to American standards in medical social service, case work, recreation, and police court work. The activities they initiated and participated in form the subject of this paper. The man on the left is a typical Czech-American Legionaire. Hygiene being made attractive forms the message to the children in the upper left-hand picture.

underwear, and shoes. No complaint, no wish was expressed that was not answered willingly and quickly. She sent us people, whose friendship and cooperation became the source of happiness and pure enjoyment. She made and left to us the splendid organization of The Care of the Child—**Péce o Díte**" which today feeds with American food for 600,000 children in the Republic; and this book expresses that same spirit of kindly good will, that same desire to help which I consider so valuable a part of America's gift to us, I would say America's loan to us, which for the time being we can honor only with an honest, Czech, cordial "Zaplat Pámbu"—"God Repay You!"

Difficulties of Situation

Whether it be for public health or social welfare or business opportunity or inspiration, the deeply sincere leaders of Czecho-Slovakia, the sturdy New Republic of seventeen months, look instinctively toward America. America was one of the first countries to recognize Czecho-Slovakia. From America came their own hundred thousand Czecho-Slovak légionnaires who in France, Russia, and Siberia brought undying honor to their country. From America came the food that kept their children from disease and death. Their faith in us even today, after grievous disappointments, is stronger and more sincere than toward any other nation.

Czecho-Slovakia, like the other young nations reborn in the war, faces great problems. At the end of four years of unapproved, inforced participation in the war, but two weeks before the signing of the armistice, it overthrew its hateful allegiance to the Austrian Government and reëstablished its independence, lost on the field of battle three hundred years before. Drained by war levies, it emerged trailing the heritage of Austrian laws, traditions, and bureaucracy. The work of reconstruction involved not only the laying of new foundations, but municipal and national housecleaning from top to bottom. Yet behind closed borders, under straightened financial conditions, in the face of most difficult political conditions and with Bela Kun's army overrunning its Slovakian lands, the Republic and its

municipal governments have made real progress towards the splendid programs to which they are committed. Still, it would be manifestly unfair to compare, without making due allowances, the conditions in Prague today with those existing there before the war or with those existing today in other countries not seriously affected by the war.

Like all the war stricken cities of Europe, Prague has suffered the most profound disturbance to its normal values of life and death. One-half as many children were born in Prague in 1918—7.10 per 1,000—as in 1914—14.11 per 1,000—and the birth rate in 1914 was one of the lowest in Europe. On the other hand, the number of resident deaths increased, though by no means to so great a degree. In 1913 the death rate was 13.51; in 1918, 17.42, approximately what it had been ten years previously. The most important cause of this increase was unquestionably tuberculosis, though increased numbers of deaths from pneumonia, old age, and influenza play a large part. The other infectious diseases remained at their usual creditable rates. The population of Prague and its five main suburbs has fluctuated during the war from 493,913 in 1914, to 448,703 in 1915, and to 485,966 in 1918.

Fluctuations in Resident Population of Prague

The Number of Births and the Number of Deaths; the Crude Birth Rate and the Crude Death Rate; the increase of Births Over Deaths; and the Population; for the 10-year Period 1909-1918 for Prague and Its Five Main Suburbs.

Year	Number of Births	Number of Deaths	Increase of Births over Deaths	Births per 1000 Population	Deaths per 1000 Population	Population
1909	9,103	7,686	+1417	18.73	15.82	485,932
1910	8,498	7,526	+ 972	18.25	16.16	465,756
1911	8,303	7,792	+ 511	17.53	16.45	473,579
1912	8,040	7,664	+ 376	16.70	15.92	481,299
1913	7,726	6,705	+1021	15.80	13.71	488,958
1914	6,971	6,673	+ 298	14.11	13.51	493,913
1915	5,150	6,777	—1627	11.47	15.10	448,703
1916	3,917	6,699	—2782	8.63	14.76	453,777
1917	3,563	7,710	—4147	7.80	16.88	456,721
1918	3,453	8,465	—5012	7.10	17.42	485,966
Total	64,724	73,697	—8973			

Tuberculosis is by far the most serious single cause of sickness and death in Prague. Almost one-fourth, 22.9 per cent, of the deaths occurring yearly are due to this single cause. It causes nearly as many deaths as all the other preventable causes of death combined. It has killed sixty-eight times as many as has typhoid fever. The average death rate from tuberculosis of residents in Prague, 356 per 100,000 population, is one of the highest in all Europe. Always high, it was fearfully aggravated by the war with its attendant misery and malnutrition. The marked decrease in the rate from 372 in 1909 to 302 in 1914 was more than lost during the war. In 1915 the rate was 354; in 1916, 387; in 1917, 408; dropping to 386 in 1918. The effects of the past five years will not show themselves fully for years to come.

The Masaryk League

To combat this great menace the health forces of the city are as yet but imperfectly organized, but progress is being made. A new national tuberculosis society has been recently formed—the Masaryk League—with a broad program and more than a million crown fund, with which the two older tuberculosis societies will soon be affiliated. Its opportunity lies straight before it. A law to make the reporting of tuberculosis compulsory is before the Assembly. The country possesses three large and excellently operated sanatoriums, while the city department of health has planned the establishment of four large farm colonies to care for 3,000 patients. Vacation colonies for scrofulous and anemic children are emphasized. The dispensaries, however, need to be greatly improved before they can be considered effective agents in combating tuberculosis. Of educational measures there are none worthy of the name.

Prague's infant mortality, on the other hand, can be compared not so unfavorably with that of other European cities. The average for the five years before the war was 166.5 per thousand births, and 140.2 for the five years during the war. The highest rate was in 1911, when 181.6 was reached; the lowest rate was in 1916, with a rate of 130.5. The following year showed an increase to 146.8; 1918 registered 143.3. The reduction in the number of children born was undoubtedly of some importance in reducing the mortality, but much credit must be given to the Society for the Protection of Mothers and Nurslings which through a baby clinic, an obstetrical clinic, a maternity home, and the distribution of milk to infants and nursing mothers, provided invaluable care for delicate infant life. But much remains to be done, and no effort can be too great in a great country where each infant life must fill the place of two other unborn lives.

The American Relief Administration's Czecho-Slovak Child Relief Bureau which was organizing the emergency feeding of 600,000 medically examined under-nourished children under fourteen years of age, exerted its influence for the establishment of a health center and milk station. In spite of many difficulties this was accomplished, the Czech Ministry of Food granting 70,000 crowns, the American Red Cross supplying the equipment, and the Society for the Protection of Mothers and Nurslings carrying on the work with the assistance of trained personnel from the Young Women's Christian Association and the American Relief Administration. The

Infant Welfare station started with a well babies' clinic, a sick babies' clinic, a gynecological clinic, and the distribution of modified milk pasteurized in the feeding bottles. Trained social service work was instituted and plans were made for effective educational work.

A Czech baby who wants more of the delicious cocoa furnished by the American Relief Administration. The "little mother" will probably have a short ration.

Prague can point with pride to her typhoid history. She has lived down her stigma as a typhoid city and has won a place among the roll of honor cities. The average yearly death rate per 100,000 population during the past five years, since the introduction of her new water supply, has been 2.7. During the five year period, 1891 to 1895, the average rate was 32.6.

The accompanying table gives the deaths and death rate from typhoid fever during the past thirty-eight years.

TYPHOID FEVER

Deaths and Death Rates per 100,000 resident Population, for the years 1881-1918, for Prague and its Five Main Suburbs.

Year	No. of deaths	Rate per 100,000	Year	No. of deaths	Rate per 100,000
1881	113	45.9	1900	57	15.4
1882	104	40.9	1901	79	21.0
1883	98	38.5	1902*	85	20.8
1884	73	27.8	1903	119	28.8
1885	71	26.0	1904	97	23.2
1886	98	35.0	1905**	38	8.7
1887	79	27.6	1906	25	5.5
1888	83	28.3	1907	45	9.7
1889	89	29.5	1908	64	13.6
1890	90	29.8	1909	47	9.7
1891	90	29.6	1910	32	6.9
1892	84	26.8	1911	36	7.6
1893	90	28.2	1912	46	9.6
1894	161	48.8	1913	25	5.1
1895	102	29.8	1914	8	1.6
1896	79	22.2	1915	14	3.1
1897	101	28.0	1916	11	2.4
1898	88	23.9	1917	17	3.7
1899	66	18.2	1918	13	2.7

**Inclusion of Yrsovice as one of the five main suburbs of Prague.
*Inclusion of Liben as the 8th district of Smaller Prague.

The interpretation of these data is particularly interesting for four periods are discernible, each period distinctive for the type of sanitation engaged in. The years previous to 1894, when the rate averaged around 30, might be called the period of negligible sanitary activity.

A serious epidemic in 1894 attributed to ineffectually filtered water drawn from the polluted river Vltava (Moldau) almost doubled the mortality. The community was aroused and to some extent educated regarding the typhoid problem. Certain steps were taken to improve the situation. A municipal laboratory for the examination of water and foods was established. Ordinances regarding the cleaning of privies and of sewers and the sprinkling of streets were passed. Special action was taken in regard to the building of privies, as many privies leaked and overflowed, contaminating well water and flooding cellars. During this second period temporary results seem to have been obtained, for the rate dropped gradually to 15.4 in 1900, but only to rise again within three years to 28.8.

The third period was marked by energetic sanitation of bad quarters of the town and by the great extension of a modern sewerage system at a cost of more than 20,000,000 crowns. An old, highly congested, insanitary quarter was completely demolished and modern buildings with water supply and sewerage system, broad streets, and squares, were erected. A great number of wells and privies were destroyed. The effect on the typhoid mortality of the district in question was striking, no deaths occurring in the four years that followed, 1906 to 1909. Furthermore, a modern sewage purification station, begun in 1902 and put into operation in 1906, greatly improved upon the insanitary practice of emptying raw sewage in the river. Results of these activities seem to be clearly shown in the rate of 1905, 8.7, and 1906, 5.5; while the average rate for the nine years intervening before the introduction of the new water supply was 8.5—a remarkable decrease from the 28.8 of 1903. It is attributable, so far as can be judged, very largely to general sanitation and improved methods of disposing of excreta.

The fourth period, beginning in late 1913, was marked by the introduction into the dwellings of the remarkably pure abundant water supply from the shallow and artesian wells sunk twenty-five kilometers distant from Prague and pumped directly into the city. For this splendid supply another 20,000,000 crowns were expended. The following year the rate fell to 1.6 and the average during the past five years has been only 2.7.

Communicable Diseases of Children

Only the briefest mention can be made of the other public health conditions of interest. The common communicable diseases of children are

Czech kindergartens are immaculate even at the feeding hour.

on the whole creditably low, the combined death rates per 100,000 from measles, diphtheria, scarlet fever, and whooping-cough having been as low as 24.5 1916). There can be a great improvement, however, in the administrative measures used to control these diseases. Measles and whooping-cough, which were reportable previous to 1913, were placed among the non-reportable diseases by order of the Imperial Austrian Bureau of Statistics.

These under-nourished children are two or three years under size.

The prevalence of venereal diseases was studied by means of a questionnaire which has recently been addressed by Dr. Janko to 367 physicians and answered by 151. In brief, it was found that there were under treatment in one week 759 cases, of which 235 were reported as new fresh cases.

Prague in 1904 was well in the van of those enlightened cities which recognized the necessity of caring for the physical welfare of their school children, but the early system has long since grown antiquated. At the present time it is being remodeled from a thoroughly modern point of view to meet the new needs and to adopt school nurses, more frequent examinations and better physical education.

Mention has been made of the excellent water and sewerage systems of the city. The milk supply, however, is lamentably bad,—bad as to quantity, bad as to quality, and bad as to method of distribution. Probably no one food commodity has suffered so seriously as a result of the war. Prague, and indeed the whole country, has been facing a milk famine for the past three years. A great milk producing country has seen its production diminished by about 95 per cent. The systematic and discriminating requisition and slaughter of milch cows by the Austrian Government was carried out to the maximum degree. The milk producing cattle of rather inferior quality that were left were subject to marked underfeeding because of lack of fodder. The milk yield per cow fell from an average of nine liters per day to four liters. The daily milk consumption of Prague fell from 300,000 liters per day in 1914, to 19,000 in the summer of 1918. The price of milk rose enormously, from six cents to thirty, forty, and fifty cents per liter. What milk was to be had was watered, and high in bacteria. Fortunately the practice of boiling milk as soon as received is a deep rooted custom of Bohemian housewives. To this habit we must attribute the fact that tuberculous infections among children are not even greater than the already large amount, for it is admitted that a large percentage, estimated at from 30 to 70 per cent, of the remaining milch cows are tuberculous.

The Child Relief Bureau of the American Relief Administration strennously urged the recommencement of the pasteurizing of the milk supply which had to be

One of the thousands of feeding stations established by the American Relief Administration for feeding undernourished children. A large out of door restaurant was placed at the disposal of the local committee at Prague.

abandoned during the latter part of the war, and after much effort this was begun on a part of the supplies handled by the five large dairies. The real difficulties of pasteurizing in the bottle under the present conditions, as detailed by the dairymen, were formidable and unsurmountable.

The restocking of the country with healthy cows is only one of those imperative needs of the war stricken countries that it will take long years to meet.

The Health Department of the city is on the point of undergoing a complete reorganization to accord with the creation of a Greater Prague with forty-two communes and close to a million inhabitants. The Department, with jurisdiction over only Smaller Prague with 218,000 population, was created by law in 1880 and presents an extraordinarily complicated character. Some suggestion of this may be grasped from the fact that two separate bodies administrate public health, one a purely legal body, composed of lawyers, which possesses full executive authority; the other a medical or sanitary body which actually carries on the public health work of the city, but without any independent executive responsibility. The health officer is the director of the medical body, known as the Bureau of Hygiene, but has not representation on the legal body, which is known as the Tenth Department of the City and which alone has power to present reports and recommendations to the municipal council.

This group of selected workers accomplished notable results under American direction.

The budget of the combined branches for the year 1918 was estimated at 1,018,594 crowns, ranking seventh in importance among the twenty-four divisions of the city budget. This represents 3.7 per cent of the total budget of the city and represents a *per capita* expenditure of 4.7 crowns. As the receipts were estimated at 309,824 crowns, the net expenditures would represent 3.30 crowns *per capita*, an expenditure which at the pre-war value of exchange of 5 crowns to the dollar compares very favorably with the health expenditures of cities of similar size whose health service ranks high.

Only a few of the interesting features of this budget can be mentioned in this article. The largest single item is for general administration and the salaries of the seventy-five employees; it represents 47.3 per cent of the total net expenditures. The next largest expenditure is for the operation of the Contagious Disease Hospital, a really model institution, which expends 21.6 per cent. A surprising item, third in importance, is the operation of eight public baths, which costs 12.5 per cent, while the laboratory's net expenditures are 2.8 per cent. Public health education and public health nurses cost nothing, because there are no such activities. One observes that the relative values of public health activities are insufficiently appreciated.

The system of district physicians, sixteen in number, who are not only public physicians to the poor but who are also local health officers of their sanitary districts, is interesting to note. There are also fourteen school physicians and three school dentists. School nurses are to be inaugurated this year.

The Health Department is unquestionably providing a valuable health service to the city, especially in controlling communicable diseases and in maintaining general sanitary conditions. It fails especially in the weakness of its attack on tuberculosis, venereal diseases and infant mortality, on the inadequacy of its milk and farm inspection, and in the lack of educational work, all of which could be effectively undertaken on its present budget if the time and money now devoted to activities of slight or no public health importance were applied to the really important problems indicated.

Public Health Workers

Unquestionably the most serious deficiency in the public health situation in Prague today is the lack of specially trained public health workers, whether trained nurses, public health nurses, health visitors, social workers, midwives, socially-minded physicians, public health administrators, or sanitarians. These fine edged tools of effective public health workmanship are woefully lacking. The standard of nursing does not demand and receive recognition and respect. Prague has long been accustomed to consider the nurse as a person inferior mentally and socially. Much intelligent thought and action are being directed

upon this problem, and the effect of the establishment of high standards and of the added prestige that public health nursing will bring, will in time turn the old prejudices into respect for so noble a profession. Trained social workers are coming to be recognized and the demand far exceeds the supply. The recent Masaryk School for Social Workers, brought up somewhere near the American standard by the brilliant demonstration of the Czech-American Summer School for Social Workers organized and conducted by Miss Mary E. Hurlbutt, of the Young Women's Christian Association, during the past summer, is besieged by applicants. School, infant welfare and tuberculosis nurses, and social workers, when trained, will find work awaiting them.

Public Health administrators are urgently needed in the new Ministry of Public Health, in the local health departments, and in the national health societies. A splendid step has been taken in this direction by the Rockefeller Foundation, which has offered five scholarships for the study of public health in America. Four chosen men are studying to day in the M. I. T.—Harvard, and Johns Hopkins' Schools of Public Health.

The Promise of the Future

This ancient, beautiful Slavic city has given ample evidence in the past of its ability to protect the health of its citizens. The inspiring words of its trusted Health Officer give more than promise that the steps which remain to be taken in order to place the public health of Prague in the foremost rank will be taken to the limit that the serious difficulties of the immediate future allow.

By nature Prague is richly endowed. Her beauty no one can forget. Her majestic river, dotted with islands, flanked by numerous parks, protected by castle and cathedral crowned hills, is the playground of the entire city. She enjoys a healthful climate and is spared the excessive summer heat of many European cities. She possesses the most important of all health necessities—an excellent water supply—and her modern sewerage system with purification station is constantly extending. Her typhoid fever is almost a thing of the past. Her experience with the common communicable diseases of childhood has, on the whole, been fortunate. In her public schools a system of medical examination of children has been in effect since 1904. Prague possesses a forty year old health department with a creditable record of service. To meet new conditions it is being reorganized under the inspiring leadership of a broad visioned, capable health officer and patriot. Prague is, moreover, aided in her fight against disease by three tuberculosis societies, a venereal disease society, a number of excellent hospitals and sanatoriums, a famous medical school, and a newly created Ministry of Public Health.

Her problems are many and the difficulties great. But with her record of past accomplishments, her zeal for advance, and the stimulating contact with American public health methods and ideals, no one can doubt but that she will march splendidly forward. Public attention is being centered upon these matters so vital to her progress, indeed to her very preservation, and out of this consciousness of public responsibility for public health will evolve a new era of prosperity and general well being of her people.

INSTRUCTION REDUCES INFANT MORTALITY

It is not just a happy coincidence that infant mortality has decreased as the intelligence of the mother has increased. "It is on the intelligence of the mothers that the conservation of our bodies depends," said Dr. L. Emmet Holt, in the *New York Times* recently. Dr. Holt is professor of the diseases of children at Columbia University.

A steady decrease in the number of reported deaths among infants from 1885 to 1919 has resulted from the general education of the community, the growing intelligence of the mother, and the increasingly important part played by the visiting nurse in the home.

"A generation ago for every one thousand infants born there were 280 deaths a year. In 1919 the figures show only 82 deaths per one thousand births, a reduction to less than one-third of what it was. As recently as 1890 26 per cent of all deaths were among infants under 1 year. Today the Bureau reports that they comprise only 14 per cent.

"The result of a well organized and well administered campaign of education in connection with infants is illustrated by the decreasing infant mortality in New York State. When Dr. Biggs became State Health Commissioner he introduced throughout the state the same general plan that had been inaugurated in the city, and the result has been that the mortality in the state has steadily fallen although it is still a little above that of the city where the educational work has been going on a longer time.

"Those who question the ultimate value of the saving of infant life and look upon these measures as simply a means of saving the unfit are answered by the figures. There has been a greater reduction in the mortality rate of the children under five years of age than of infants, as is shown by the following table, based on a child population of 1,000 under five, prepared by the Bureau of Vital Statistics:

1899	61.1	deaths
1908	50	"
1913	37.6	"
1919	24.7	"

"The same agencies which so materially reduced infant mortality brought about also a corresponding reduction in the mortality of adults as well as of older children. Again quoting the figures of the bureau, 'In 1899, out of a total population of 3,356,722, the death rate was 19.5 per 1,000, while in 1919, with a total population of 6,006,794, the death rate was only 12.4 per thousand.'"

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

LEWIS J. POLLOCK, M.D., *Chicago*
Neurology, Psychiatry and Psychology

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

JOSEPH C. BOCK, C.E., Ph.D., *Milwaukee*
Physiological Chemistry

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

THE MENINGOCOCCIDAL ACTIVITY OF BLOOD

IN this investigation there has been another effort made to devise a method for determining the bactericidal action of blood upon a coccus,—in this case a meningococcus. One of the main difficulties in testing out in an experimental manner or *in vitro*, the bactericidal power of anticoccal sera is that no method has yet been developed to make this determination. It is easy to kill typhoid bacilli in the test tube with antityphoid serum. Streptococci, staphylococci, gonococci, and meningococci, however, are resistent. The biological reason for their resistence is probably the reason why it has been impossible to produce an efficient antiserum for most of these cocci. It is different, however, with meningococci, for there has been produced a very efficient curative and, therefore, a bactericidal serum for meningococci.

The work of Matsunami[1] with the Lacy-Heist method for determining the bactericidal action of blood against meningococci is very significant. It is interesting to note that he found that whole blood showed a distinctly stronger bactericidal action than serum. Also, it was found that the meiningococcidal activity *in vitro* of immune rabbits' blood was stronger than that of immune serum or defibrinated blood or blood cells in serum or citrated blood. This action of whole blood is attributed to the phagocytic action of the leukocytes. This would explain the fact that immune rabbit serum had no stronger meningococcidal activity than normal rabbit serum. The degree of meningococcidal power in any of these tests was small and, undoubtedly, not in proportion to the activity of antimeningococcus serum when used therapeutically. Therefore, in spite of the importance of this work the method cannot be used to test out the degree of bactericidal action of therapeutic antimeningoccocus sera.

1. Matsunami, Toitau: Studies on the Meningococcidal Activity of Blood, Jour. of Immunology, January, 1920, p. 51.

ISO-AGGLUTININS IN INFANTS AND CHILDREN

THIS investigation has not only purely scientific value, but also a practical importance in demonstrating that the blood of an infant and its mother may belong to different groups. Happ[1] shows that it is not safe to transfuse an infant with its mother's blood without previously determining the blood group of each, thereby learning whether the two bloods are compatible. It is just as necessary to make these tests before transfusing an infant as for an adult. This fact is not generally known.

1. Happ, W. M.: Jour. Exper. Med., 1920, xxxi, 313.

Mother's milk was found to contain iso-agglutinins belonging to the same group as mother's blood. Since some nursing infants were found to belong to a different group than the mother, it is evident that the iso-agglutinins in the mother's milk did not pass into the infant's blood or determine the infant's blood group.

Several conclusions arrived at are of much interest. Iso-agglutinability of infant's corpuscles develops sooner than iso-agglutinins develop in the serum. The blood group is usually present at one year of age, and always present after two years. When the grouping has become established in both serum and corpuscles, it does not change.

W. T.

THE COAGULATION TIME OF BLOOD

RODDA[1] has devised a simple method for determining coagulation time, and in 126 new-born found this to average seven minutes in the first twenty-four hours of life.

The heel of the infant is punctured with the usual type of lance to secure a free flow of blood. The second drop is collected in a clean watch glass, one and one-half inches across. In the watch glass is a single No. 6 lead shot. A second watch glass is inverted over the first. The time is counted from the falling of the discarded first drop. The end reaction is said to be sharp and consists of fixing of the shot in the clotted drop of blood so that the glass may be inverted without dislodgement of the shot. At times the clot may move on the glass, carrying the shot with it.

The coagulation time may vary from five to nine minutes. After the first twenty-four hours of life the coagulation time showed a tendency to prolongation up to the fifth day, and returned to the original by the tenth day. This method was controlled by that of Lee and White[2] with blood secured by puncture of the superior longitudinal sinus. The average time was the same for both methods, with less variation by the watch glass method. Bleeding time, by Duke's[3] method was found to average three and one-half minutes, and showed the same general type of curve as the clotting time. Rodda believes his studies have shown that prolongation of both bleeding and coagulation time in the new-born indicates an hemorrhagic tendency or disease and should be treated by the subcutaneous injection of normal blood, which will prevent the hemorrhages. This investigation seems to have been very carefully done, the method is simple and seems accurate.

1. Rodda: Studies with a New Method for Determining the Coagulation Time of Blood in the New-Born, Am. Jour. Dis. Children, April, 1920.
2. Lee, R. I., and White, P. D.: A Clinical Study of Coagulation Time of Blood, Am. Jour. Med. Soc., 1913, exlv, 495.
3. Duke, W. W.: The Relation of Blood Platelets to Hemorrhagic Disease, Jour. Am. Med. Assn., 1910, lv, 1185.

AGGLUTININS AND HEMOLYSINS

BLOOD tests *in vitro* done on the blood of the patient and prospective donor are absolutely indispensable to prevent serious accidents in transfusion. It has been generally accepted that in a general way iso-aggultinus and isohemolysins exist usually in the same serum in about the same proportion. It has therefore been believed that, if a very small amount of agglutination has been found in the patient's serum against a prospective donor's cells, the count of hemolysins will also be small. In the recent work of Ottenberg and Krasnow[1] they have definitely shown that, whereas, in general weak hemolysins parallel weak agglutinins and a strong hemolysin parallels strong agglutination, this is not always the case. On the contrary, they found that a strong hemolysin often occurs with weak agglutinins. Therefore, they emphasize very strongly that donors should be rejected whose red cells are even slightly agglutinated by the patient's serum, for such a case provides the possibility of an extensive hemolysis occurring in the blood. W. T.

SILVER SALVARSAN SODIUM

KOLLE,[1] in Germany, has recently introduced silver salvarsan sodium in the treatment of syphilis. Preliminary experimentation as to the therapeutic value of the drug in syphilis was made with rabbits. It is understood that Kolle placed generous quantities of the drug in the hands of German clinicians[4,5,6,7,8] so that now the leading German medical periodicals are reporting the observations of these clinicians.

It is stated that this new antisyphilitic agent is more harmless than old salvarsan because the effective dose, 0.2 to 0.3 gm., is below the danger point for arsenic. The arsenic content of silver salvarsan is reported as 22.5 per cent, with 14 per cent silver. This arsenic content is about two-thirds that of old salvarsan. Silver is reported as catalytic to the arsenobenzol molecule, and is also said to reinforce the specific action of arsenic on the Spirochaeta.

It is claimed that silver salvarsan acts rapidly, is well borne, and that it has been used without severe reactions. From 1 to 1.4 gm. is considered sufficient for a single course of treatment.

Delbanco[9] reports 550 injections of the drug without untoward reaction. Boas and Kissmeyer[10] reported the use of 400 tubes of silver salvarsan on 62 syphilitics and think it equal to old salvarsan. Korsbjerg[11] used it on 32 patients with favorable results.

WALTER C. ALLEN, M.D.

*Ottenberg, Reuben, M. D., and Krasnow, Frances, A. M.: Is There a Parallelism Between Normal Agglutinins and Hemolysins of Human Blood? Proc. of the New York Path. Soc., Jan.-May, 1919, p. 83.

1. Kolle, W.: Deutsch. Med. Wchnschr., 1919, xlv, 481.
2. Rille and Fruhwald: Munchen. med. Wchnschr., 1919, lxvi, 1226.
3. Hoppe: München. med. Wchnschr., 1919, lxvi, 1376.
4. Stern: München. med. Wchnschr., 1919, lxvi, 1377.
5. Nolten: Deutsch. med. Wchnschr., 1919, xlv, 987.
6. Dreyfus: Deutsch. med. Wchnschr., 1919, xlv, 1292.
7. Knopf and Sinn: Deutsch. med. Wchnschr., 1919, xlv., 517.
8. Friedlander: Deutsch. med. Wchnschr., 1919, xlv, 484.
9. Delbanco: Deutsch. med. Wchnschr., 1919, xlv, 150.
10. Boas and Kissmeyer: Ugesk. f. Laegar, Copenhagen, 1920, lxxxii, 191.
11. Korsbjerg: Ugesk. f. Laegar, Copenhagen, 1920, lxxxii, 196.

EOSINOPHILIC LEUKEMIA

THIS is an extremely unusual case reported by Shapiro.* There is apparently only one other similar case in the literature. The white blood cell count varied from 15,700 to 236,000 and the polymorphonuclear eosinophiles from 48.5 to 86.5 per cent. The disease was apparently a primary blood disease as borne out by the clinical and autopsy findings. All of the known causes of eosinophilia were ruled out in this case.

We are not accustomed to think of leukemia with the predominating cell in the circulating blood a polymorphonuclear leukocyte. Nevertheless, this case seems to be one of leukemia and will have to be considered as such for the time being. Large clinics should scrutinize their cases carefully to see if perhaps other similar cases may not be found, so that this condition can be further investigated and the disease more accurately classified.

The January to May, 1919, Volume of the *Proceedings of the New York Pathological Society* contains many other interesting cases and reports well worth reading.

W. T.

SUBGROUPING OF A SPECIES OF BACTERIA

SINCE the subgrouping of Pneumococci by Cole and his co-workers, studies have been directed along these lines with other organisms. The subgroups of Pneumococci, as determined by Cole, seem quite definite although this is not accepted by all workers. The criticism that these subgroups of Pneumococci show distinctive reactions only with low dilutions of sera is the main criticism which can be directed against this work. In spite of this criticism the best authorities have accepted this work of Cole.

Meningococci have also been divided into subgroups, the work of several English observers being mainly responsible for this. This subgrouping of Meningococci also can be accepted. Based on this work, anti-meningitis sera have been prepared for the different subgroups and have been found more effective therapeutically than polyvalent serum in cases where the subgroup of the individual organism is determined.

Havens[1] has recently reported that diphtheria bacilli can be divided by immunological methods into subgroups. He has also presented evidence that the antitoxins of these groups are somewhat different from one another, but that they are not as differentiated as the agglutinins for the groups. Nevertheless, he states that his investigation indicates that the effectiveness of therapeutic diphtheria antitoxin could probably be enhanced by making sure that in its production members of the second or smaller group of diphtheria bacilli were included.

All of the studies above noted seem important and seem to be definite contributions to our knowledge. A recent article by Small and Dickson[2] on the grouping of Bacillus influenzae, however, causes us to note that great caution should be used in explaining these ideas of subgroups for a given organism until a great deal of very careful work is done. The investigation of Small and Dickson was done with only a small number of strains of the organisms and should be extended before their results are accepted. We should be careful that this idea of subgrouping of different species of bacteria is not carried too far on insufficient data.

Variation, which is so universally present in organic life, undoubtedly occurs also with bacteria. It would seem much more probable that in most instances different strains of an organism vary slightly one from the other instead of falling into definite subgroups.

W. T.

*Shapiro, Louis G.: Eosinophilic (Polymorphonuclear) Leukemia, Proc. New York Pathological Society, 1919, n. s., xix, Nos. 1-5.

1. Havens, Leon C.: Biologe Studies of the Diphtheria Bacillus, Jour. Infect. Dis., 1920, xxvi, No. 5.

2. Small, James C., and Dickson, G. K.: Grouping of Bacillus Influenza by Specific Agglutination, Jour. Infect. Dis., 1920, xxvi, No. 3.

BLOOD VOLUME DETERMINED BY TRANSFUSION

IN a previous review attention was called to a method devised by Winifred Ashby of the Mayo Clinic for determining the length of life of transfused blood cells. If Group IV blood is transfused into patients belonging to groups I, II, or III, then blood can be withdrawn in a blood counting pipette and diluted with serum from a blood group which will agglutinate the original cells of the patient. In this way the unagglutinated cells can be counted, and these will, of course, be the original cells transfused. By this method Ashby determined that transfused cells persist in the circulation of the recipient for at least thirty days. A number of additional important findings are given in this second communication of Ashby. Ashby has modified the technic of this procedure in light of experience and the improved technic is the one to be followed.

The part of this communication which impresses one as being of greatest importance is that which explains how this method can be utilized to determine the blood volume of the patients. It becomes possible to make the red blood count and measure the amount of blood transfused and then by determining the number of transfused (unagglutinable) corpuscles in a cubic millimeter of blood, derive the blood volume of the recipient. Ashby's report on the subject of blood volume determination by this method, now under preparation, is awaited with great interest.

There seems to be no doubt that in Ashby's hands the procedure of counting the number of transfused unagglutinable corpuscles can be done with accuracy. The method appears simple, and thus should be available generally. Instead of injecting a dye, as is done with the method of Rowntree,[2] or of Whipple[3] and his associates, one injects a perfectly bland blood from a group four individual. With the dye methods the plasma volume only is determined directly, and the whole volume is then determined by the hematocrit method, which is well known to be open to criticism. With the Ashby method the total blood volume is determined directly.

The reviewer made some calculations from the figures given in Ashby's two articles and found out that the calculated blood volume came to about one-eleventh to one-twelfth of the body weight. These figures coincide with those which seem most accurate as obtained by other methods. It is to be hoped that the method of Ashby will be tried out in many places, as it is believed that it will be a great help in obtaining information as to blood volume in various conditions.

W. T.

1. Ashby, Winifred, B. S.: The Determination of the Length of Life of Transfused Blood Corpuscles in Man, Jour. Exper. Med., 1919, xxix No. 3, pp. 267-281.

Some data on the Range of Life of Transfused Blood Corpuscles in Persons Without Idiopathic Blood Diseases, Clinic of North America, November, 1919.

2. Keith, N. M., Rowntree, L. G., and Geraghty, J. T.: A Method for the Determination of Plasma and Blood Volume, Arch. Int. Med., 1915, xvi, 547-576.

3. Hooper, Smith, Belt, and Whipple: Blood Volume Studies: Experimental Control of a Dye Blood Volume Method, Am. Jour. Physiol., lv, 205.

WATER LOSS IN SUMMER DIARRHEA

AT this time of the year, when respiratory infections are on the wane and "summer diarrhea" is beginning to take its toll among the babies, it is perhaps not inopportune to emphasize the importance which has been ascribed to "water loss," or dehydration of the tissues, in certain of the newer conceptions of the nutritional disorders of infancy. It has, of course, long been known that man can go without food for a much longer period than he can go without water; many physicians customarily prescribe water in large amounts during the course of certain infections, and particularly in the diarrheal disorders of children. The exact effects produced by marked loss of water from the tissues, however, are not so well understood, and have formed the basis for considerable speculation.

Marriott[1] has recently produced experimental evidence bearing on the pathology of certain nutritional disorders of infancy, in which the disastrous effects of desiccation of the tissues are emphasized. In the severe attacks of vomiting and diarrhea, so common in the summer, often for a time the amount of water eliminated from the body is greater than that ingested and, according to Marriott, there is produced the train of symptoms commonly referred to as "alimentary intoxication," "cholera infantum," or, as this author prefers to call the condition, "anhydremia." The blood shows a relatively high concentration of protein in the serum, and a low water content. There follows a diminished blood volume which results in a diminished volume flow of the blood and, apparently, a consequent alteration in the functional capacity of various organs, notably the heart and kidney. As a result of the diminished renal function, an accumulation in the blood of waste products ordinarily eliminated in the urine occurs, and not infrequently symptoms of uremia and acidosis are produced. Usually all of these symptoms vanish if enough fluid can be supplied to the tissues to bring the blood volume and concentration back to normal. Fluid is supplied by every available route, one of the best methods being the injection of large amounts of normal saline or Ringer's solution into the peritoneal cavity, 400 to 500 cc. often being absorbed in this manner with surprising rapidity even in babies. That the latter procedure, under the strictest aseptic precautions, is practically devoid of danger, is vouched for by Blackfan and Maxey[2] who first advocated its use in infants, McLean and Lang[3], and others. The circulation and blood volume may frequently be greatly improved also by the intravenous injection of 4 per cent glucose solution (10 to 20 cc. per kilo of body weight, according to Marriott), which has the additional advantage of acting as a food and diuretic. The measures outlined above constitute a distinct therapeutic gain in the fight against a disease which annually causes the death of many hundreds, if not thousands, of infants.

T. C. H.

1. Marriott, W. McKim: The Harvey Lectures, 1920.
2. Blackfan, K. D., and Maxey, K. F.: The Intraperitoneal Injection of Saline Solution, Am. Jour. Dis. Children, 1918, xv, 19.
3. McLean, S., and Lang, C. A.: Fluid Injections in Dehydrated Infants, Am. Jour. Dis. Children, 1920, xix, 359.

REFRACTOMETRY*

THE medical man of today realizes that the tremendous progress in the perfection of diagnostic means is to the largest extent to be credited to the successful application of principles and methods which were previously considered of purely academic interest.

It was therefore thought of interest to give a short account of a series of methods used in the examination of blood sera, which methods in turn are based on the use of the refractometer. We have attempted to avoid technical discussions and details as much as possible and can therefore only give a very general survey of the subject.

When a ray of light passes from a less dense to a more dense medium it is bent or refracted towards the normal, so that the angle of refraction will be less than the angle of incidence. The ratio of the sines of the angles of incidence and refraction is constant and characteristic for the media. Representing by i and r the angles of incidence and refraction we have $\frac{\sin i}{\sin r} = n$, the refractive index. The instrument used for the measurement of the refractive index is called a refractometer. There are several types of such instruments on the market. They were mostly made in Europe, but lately an American firm is manufacturing refractometers. The types best suited for clinical work are the Abbé refractometer (Fig. 1), the Pulfrich refractometer (Fig. 2), and the Pulfrich-immersion refractometer (Fig. 3). The operation of these instruments, especially that of the Abbé and immersion type, is simple. The immersion type must be used with the accessory prism. The amount of substance needed is very small, varying with the type of instrument used from one to ten large drops. Once the instrument is set up and connected with a thermo-regulating device, a single reading can be made in a few seconds. The readings are either direct or can be easily converted by means of tables furnished with the refractometer. The refractive index of a mixture can be calculated from the known specific refractions of the single components and, knowing the refractive index of one, the other can be calculated. It is this general principle that allows us to determine constituents of the blood such as serum-albumins and serum-globulins. For practical purposes it is often sufficient to simply compare a series of determinations with an established normal.

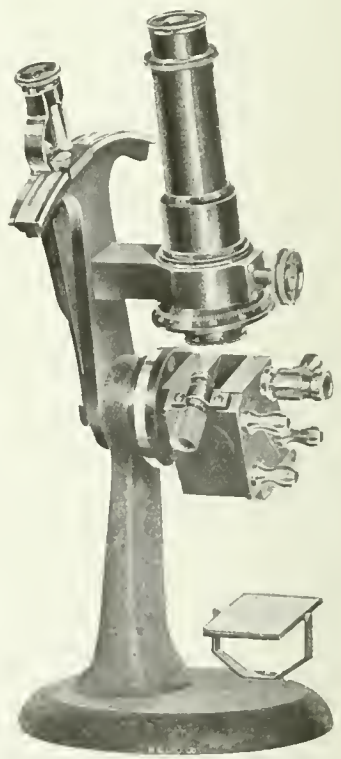


Fig. 1. The Abbé type of refractometer simplifies the use of this method of diagnosis in the clinical laboratory.

Strubell[1] reported on refractometric blood examinations in 1900. The methods used by Strubell have later been improved by Robertson[2] and by the researches of Reiss.[3]

*The author is indebted to C. Zeiss, Jena and to Bausch & Lomb, Rochester, New York, for the illustrations.

1. Strubell: Eighteenth Internat. Congress f. int. Med., Wiesbaden, 1900.
2. Robertson, T. B.: The Physical Chemistry of Proteins, Longmans, Green & Co., 1918. (Bibliography.)
3. Reiss, E.: Erg. d. inn. Med. u. Kinderh., 1913, x, 531. (Bibliography.)

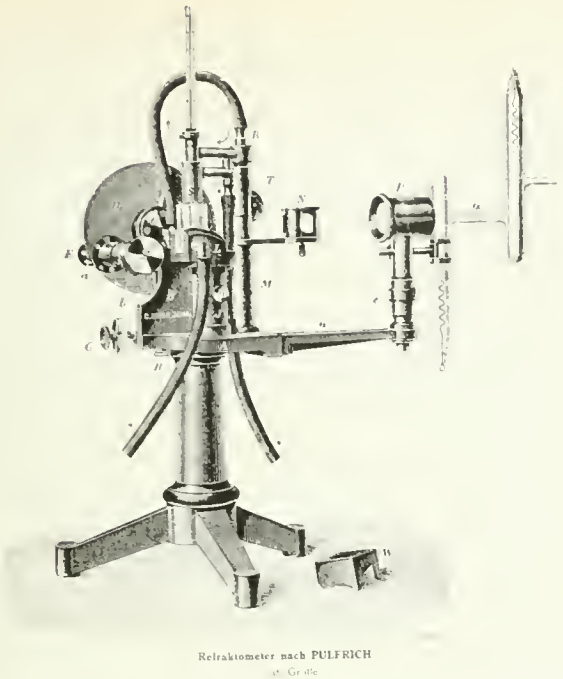


Fig. 2. The Refractometer of Pulfrich is the type of instrument used in much of the reported work in the determination of refractive indices.

In order to acquaint the reader with some of the methods, the principles of Robertson's technic are shortly discussed. Robertson modified the original method of Reiss for the estimation of total serum proteins in such a way as to permit the separate estimation of non-proteins, globulins, and albumins, besides the total proteins of the serum.

For the estimation of the non-protein constituents, the proteins of the serum are removed by heat coagulation in presence of acetic acid. The coagulum is separated by centrifugalization and the supernatent fluid is used for the refractometric determination. Taking into consideration the refractive index of the dilute acetic acid used in the procedure, the concentration of the non-protein substances can be calculated by means of a factor. To determine the amount of serum-albumin a small quantity (0.5 cc.) of serum is treated with an equal amount of saturated ammonium sulphate solution. In this procedure the serum-globulins are precipitated and the albumins can be determined refractometrically in the resulting clear fluid after proper dilution and taking in account the refractive index of the ammonium sulphate solution that had been added. After the refractive index of the serum has been determined, the calculation of the globulins is simple.

The work of Reiss on blood refractometry is very extensive. He compiled a table which allows a conversion of the refractometric readings into per cent of serum proteins. Reiss studied various factors influencing the refractive index of normal blood serum, such as food, liquid intake, muscular work, temperature, and blood letting. Among the numerous pathological conditions studied by Reiss we might mention: Bronchopneumonia, diabetes, nephritis, cardiac and circulatory disturbances, and acute infections. If we take, for instance, the case of chronic nephritis the simple refractometric determination will in many cases point to a liquid retention before actual edematous or similar conditions appear.

A considerable amount of work has also been done in this country in the last few years. Tranter and Rowe[4] studied a number of normal individuals, using the methods of Robertson. They found the variations in the protein percentage between 6.7 and 8.7 per cent, thereby agreeing closely with the finding of Reiss. The albumins were found to average about 6.2 per cent or 78 per cent of the total proteins; the globulins show an average of 1.74, or 22 per cent of the total proteins. Rowe[5] later found a higher globulin percentage in normal cases. In his examination of pathological sera he found a marked variation in the globulins of many cases. Syphilis showed a distinct increase in globulins, while the total proteins remained about normal. In pneumonia the globulin increase in relation to the protein is still greater although the protein total is decreased. An increase in globulins is noted in nearly all infections except those of a mild type; exceptions are also noted in acute tonsillitis and typhoid.

A study of the Wassermann reaction seems to point out that this reaction is not due to any increase in serum globulin. In his later work Rowe found an increase in the globulins of nephritic sera, which increase would again approach a normal level as death draws near. The non-proteins were found very high. Cardiac decompensation and arteriosclerosis showed a moderate increase in the globulins. Diabetes (without infection), hyperthyroidism, hemophilia, chronic bronchitis, pellagra, obesity, lead poisoning, gastro-intestinal disorders, and neurasthenia gave approximately normal results.

Hurwitz and Meyer[6] used the refractometric method to study the albumin-globulin ratio during immunization.

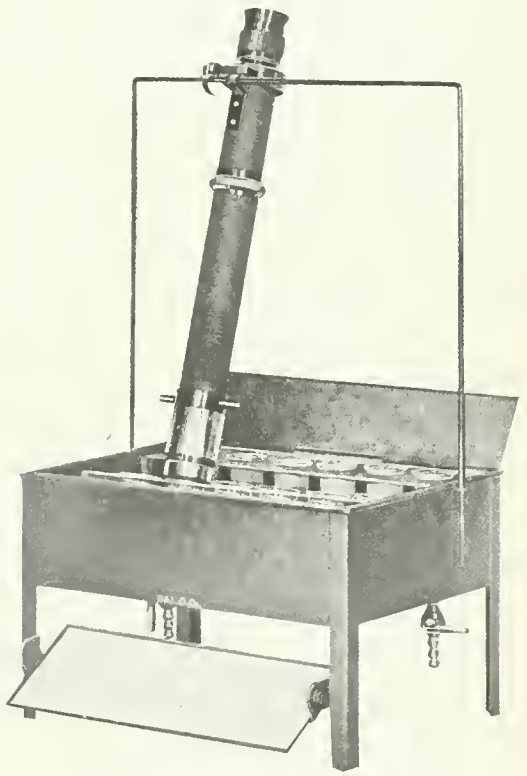


Fig. 3. The immersion type of Refractometer is used with the accessory prism. Once the instrument is set up and connected with a thermo-regulating device, a single reading can be made in a few seconds.

They find an increase in globulins long before any appreciable formation of immune bodies occurred.

The work of Rohrer[7] marks another step forward.

4. Tranter, C. L., and Rowe, J.: Jour. Am. Med. Assn., 1915, lxv, 1433.

5. Rowe, A. H.: Arch. Int. Med., 1916, xviii, 455; 1917, xix, 354.

6. Hurwitz, S. H., and Meyer, K. F.: Jour. Exper. Med., 1916, xxiv, 515.

Naegeli indicated the value of the relationship between the refractive index and the viscosity of the blood. Rohrer proved that the two above mentioned values are actually independent of the other serum constituents. Alder[6] using the findings of Rohrer[7] studied the albumin-globulin relation in the serum and found that the variation of this ratio in the individual is small. The findings of Rohrer and of Alder are the most promising, as we shall attempt to illustrate:

The serum protein content is increased from the normal in pulmonary tuberculosis, the increase is, however, slight, so that its diagnostic value is of no great importance *per se*. The albumin-globulin ratio is normally fairly constant. In tuberculosis, however, we find changes which show in extreme cases such an increase in globulin so as to reverse the ratio from a normal albumin-globulin 2:1 (roughly) to a ratio of 1:2. This is not specific for tuberculosis and has, therefore, to be used with caution; there is, however, the possibility of drawing conclusions as to the activity of the disease from the progressive increase in the globulins; in other words, there is the possibility of prognosis.

It is our opinion that the attempt should be made to include whole blood and not serum alone within the scope of future investigations. Whereas the work to this date will undoubtedly prove of the greatest value, the relation of corpuscles to the serum will serve as an additional help.

The above lines are, as indicated, merely an attempt to present a brief summary of the apparent importance of refractometric methods in modern medicine. The apparatus used is not extremely costly. The instrument is easily handled and does not require any changes in the laboratory, except for the Pulfrich (large) type, which has to be used with monochromatic light and therefore needs a dark room. The methods used in the handling of the serum previous to the refractometric reading are not more complicated than those used in chemical blood analysis. It is, therefore, to be hoped that these new procedures will find wider use and ultimately benefit mankind. J. C. B.

THE LA PORTE TREATMENT FOR CHRONIC OSTEOMYELITIS

THE claims made at the Chicago Medical Society for the La Porte treatment by the men who have been studying and experimenting with it, are so interesting that we feel they are worth publishing. The following statements are taken from the addresses and discussions of these men and not from our own observations or conclusions:*

The La Porte treatment, in brief, consists in the application over infected areas of aluminum potassium nitrate in an oatmeal poultice. The nitrate reaches the infected tissue through the skin by means of osmosis, breaks up into a nitrate, thus liberating nascent oxygen.

The aluminum potassium nitrate is formed by adding concentrated nitric acid to aluminum hydroxid; potassium hydroxid is added and the mixture is allowed to crystallize. This crystalline product is the salt used. The salt is then mixed with rolled oats which have been disinfected by being strained for two hours under a fifteen pound pressure. The proportion of salt to oatmeal is thirteen grains to the ounce. The oatmeal mixture is spread over a piece of gauze under which a piece of oiled silk or gutta-percha has been placed.

The poultice is then applied over the area of infection; the sound area adjacent is also covered. When this poultice is used over an area of chronic osteomyelitis with several sinuses it is found that within eight to twelve hours the serous discharge, which may have been present for years, is changed in character to a frankly purulent one; after twenty-four to forty-eight hours the skin becomes reddened, resembling an erysipelas; seventy-two hours later vesicles begin to form which soon change to pustules. These vesicles and pustules appear only over the diseased areas; the skin above and below, although covered with the poultice, remains clear.

At the same time that these pustules have been forming the discharge from the sinuses which at first may have been very scant has become very abundant. "The pus just rolls out," says Dr. Strauss. As the discharge becomes more copious, the tension in the tissues is relieved and pain subsides. The general condition of the patient also improves. The temperature becomes normal, the appetite increases, and many cases who have been bedridden are able to get up and get around.

The changes in the bone are slower. The free discharge drains the cavities. Sequestra becomes either entirely loosened and are cast off, or are "lifted out" surgically; or, in some instances, the sequestra actually heal in. The bone tends to resume a more normal aspect; the diameter of the shaft decreases; the cavities gradually diminish, as the case goes on to recovery; the pustules become umbilicated; the discharge lessens and finally ceases altogether; and the skin becomes free and pliable.

The application of the poultice brings about an autolysis and liquidation by means of which the dead tissue is cast off. It causes a marked hyperemia and hyperplasia of the blood vessels. At times in operative procedures—such as enlarging a sinus, draining a pus pocket, or removing a sequestrum,—undertaken during the course of treatment, there will be bleeding as if a hemangioma were being cut. Another result of the poultice is the increase in bacterial growth. The salt is not an antiseptic; on the contrary, it stimulates the growth of microörganisms. The discharges at first contain few organisms; later they are loaded with bacteria. This is not merely a skin contamination but a growth of the same organisms which were cultured before treatment. This bacterial activity stimulates the formation of antibodies and antitoxins.

The action of the salt is due to its passing through the skin as a dialysing membrane by osmosis. The nitrate changest to a nitrite, and nascent oxygen is liberated, the oxygen having a selective action for the diseased tissue.

The action is definitely selective. The reactions are obtained only if the poultice is applied over an infected area. If the poultice is used over healthy structures no vesicles or pustules will form. If the poultice extends over the healthy tissue adjacent to the diseased area, the vesicle and pustule formation will not appear except on the skin over the infection, although the whole skin area is bathed with pus. Application of the salt and poultice after healing will not cause any further changes.

The advocates of the La Porte treatment do not claim it to be a cure-all. They say it is indicated in chronic infections of bone and soft tissue; that it is not a substitute for surgery, but an adjunct to surgery; that by its use the extensive tunneling and lateral wall removal operations are replaced by simple opening of cavities, enlarging sinuses and lifting out sequestra. R. B. B.

*Strauss, A. A., Kreuscher, Philip, and Gronnerud, P.: The Treatment of Chronic Infections and Chronic Osteomyelitis by Aluminum Potassium Nitrate (LaPorte treatment); read before the Chicago Medical Society, June 9, 1920.

7. Rohrer, F. D.: Arch. f. klin. Med., 1916-17, cxxi, 221.

8. Alder: Arch. f. klin. Med., 1918, cxxvi, 61; Ztschr. f. Tuberk. u. Heilstatenw., 1919, xxxi, 10.

HELIOTHERAPY—NATURAL AND ARTIFICIAL

By E. H. SKINNER, M.D., Kansas City, Mo.

THE investigator of phototherapy encounters two very obvious facts: that this new treatment is, for anything still in its period of development, successful in a great majority of cases; and that the underlying principles of this method are as yet little understood. Various hypotheses have been advanced, but few of them with the required amount of scientific proof behind them, and frequently appearing contradictory of each other. The particular branch of phototherapy known as heliotherapy, sun treatment, natural or artificial, seems to have gained more favor in Europe than in this country, where attention has centered rather on the use of the x-ray or of radium. Rollier's sanatoriums in the Alps, and Finsen's Institute in Denmark, are perhaps the two best known of the several places on the continent which are devoted exclusively to this method of treatment. Rollier is the pioneer exponent of the treatment by the true sun rays, while the Finsen Institute régime is illustrative of the use of artificial heliotherapy as applied by the Finsen lamp. Reyn and Ernst[1] have demonstrated during the last five years that light treatment alone, without the cooperation of climatic influences, cured as effectually at the Finsen Institute at Copenhagen as Rollier's mountain climate sun baths.

Diseases to Which Applied

Heliotherapy has been applied to various types of disease, although its supporters warn against considering it as a cure-all. It has been most successfully applied in cases of surgical tuberculosis, ulcers and various kinds of sores, including war wounds, inflammatory conditions such as gout, arthritis, and in skin diseases such as lupus, acne, eczema, and psoriasis. Some instances of use of artificial heliotherapy in pneumonia and pulmonary tuberculosis are also recorded.

Heat or Ultraviolet Rays

In recent years the belief that the heat rays are the most beneficial factor has given way to a belief in the value of the ultraviolet rays, and hence we find the ordinary incandescent lamps less in use, while various lamps for producing ultraviolet rays in large quantities are being employed. The first of these ways, the carbon arc light, which is the type used by Finsen, the founder of this type of light therapy. The iron arc was introduced by Kjelsen as an improvement on the slow acting carbon arc, but although its proportion of ultraviolet rays was greater, there were impediments to its use, and in 1907 the quartz mercury-vapor lamp, known as Kronmayer's lamp, was introduced, which has since then become the foundation for the types in most general use. When faith in the power of the heat rays gave way to a belief in the efficiency of the ultraviolet rays, lamp makers were confronted with a difficulty in the fact that the ultraviolet rays are largely, if not entirely, shut off by ordinary glass. But quartz allows these rays to pass freely, and with the adaptation of the quartz tube to the mercury-vapor lamp came the possibility of having a successful source of light far richer in ultraviolet rays than is sunlight, and always accessible without regard to climatic conditions. For this reason some of the supporters of artificial heliotherapy consider it far superior to the use of the sun's ray, whether the carbon arc or the mercury-vapor lamp is the source to be considered.

Methods of Light Treatment

Reyn and Ernst,[1] in Denmark, use the carbon arc light, and in their experience with it since 1913 report a continuous series of cures. They claim the effect of these general light baths is something very different from the Finsen treatment of focused light. The aim in these baths is to have the body absorb as many of the chemical rays as possible. The exposures begin at short periods, from fifteen to thirty minutes, lengthening to two and one-half hours during the first week, which establishes the limit of duration for a single treatment. The general length of treatment for 156 patients was from four to eight months. Some of the cases were taking the localized Finsen treatment and began the general baths as supplementary to this. The general treatments were usually given every second day with a powerful current, although in tuberculosis cases there seemed great individual variation in the amount of current most effectual. The most striking cases were in osteitis and arthritis cases in many of which the joint healed without impairment of function.

From their experience the conclusion is drawn that the chemical rays are the effective element in light treatment, whether it be by Rollier's sunlight treatment or by artificial light.

Blegvad[2] reports twenty-four cases of tuberculous lesions of the larynx in which the universal light bath treatment as given at the Finsen Institute was used and in which six cases were marked successes, the lesion retrogressing completely. In thirteen other cases he reports marked improvement, while the remaining five cases, which seemed unsuccessful, he regards as still open to improvement by this method.

Collins[3] believes phototherapy to be still in its infancy, in spite of the great advances made in recent years under the leadership of Finsen, Rollier, and Reyn and Ernst. He speaks of the treatment of 133 tuberculous children in one of the seashore sanatoriums in Denmark, where the quartz mercury-vapor light is installed. These cases were those in which the general treatment had failed to show improvement and thus they were the more severe cases. In 102 of them general baths were given, in fifty-two merely local and in thirty-four regional baths, some being treated by associated baths. The average length of the course of light treatment was five months, the range being from six weeks to ten months. The thirteen cases of the 138 cases in which recurrence was observed he accounts for by the fact that the treatments were dropped too soon. Two children had tuberculous lesions other than those treated. In 108 cases the lesions were completely cured and in twenty greatly improved.

Advantages of Artificial Heliotherapy

As far as the expediency of this treatment is concerned, the greatest objection seems to be the length of time required. In the use of artificial light this may be short-

1. Reyn and Ernst: Artificial Heliotherapy in Lupus and Surgical Tuberculosis, Hospitalstidende, May 16, 1918. Abst. Jour. Am. Med. Assn., 1917, lxix, 78.

2. Blegvad, N. R.: Phototherapy in Laryngeal Tuberculosis, Ugesk. f. Laeger, Nov. 1918. Abst. Jour. Am. Med. Assn., 1919, lxxii, 534.

3. Collins, E.: Light in Treatment of Tuberculosis of Bones and Joints, Ugesk. f. Laeger, Nov. 21, 1918, p. 1841. Abst. Jour. Am. Med. Assn., lxxii, 462.

ened because of the fact that treatment can be as regularly and as frequently as desired. Further, the question of locality need not be considered and patients who are unable to devote their time exclusively to treatment or who are too weak to be transported to a distant sanatorium can be treated wherever an electric current gives opportunity to develop the required light.

Sun Ray Treatment

The supporters of natural heliotherapy differ in their opinions on some points. Rollier believes that the ultraviolet rays are exceedingly numerous in the sunlight but that the atmosphere, by its moisture and dust, prevents many of these rays from reaching the ordinary parts of the earth. Hence he considers it necessary to be located on very high ground and as far from cities as possible. Other exponents of heliotherapy have located sanatoriums on the seashore and seem to believe that the climatic benefit is a great adjunct to the treatment. On the other hand, others, among them Cololian and Frieburg,[4] hold that locality has little to do with its efficacy and think heliotherapy can be used as successfully in large cities as in any other place, provided, of course, that the air is reasonably free from smoke and the climate sufficiently rich in sunny days.

Sun Bath School

Armand-Delille[5] in 1917 organized a sun bath school like Rollier's at Leysin for the children of repatriated tuberculous women. The school is in a hilly region of Savoie. The children are clad only in trunks and play and study outdoors from eight in the morning to four-thirty in the afternoon. One month of this treatment was frequently enough to cause suspicious glands to disappear. Armand-Delille suggests heliotherapy as a regular part of child hygiene. Medical supervision is necessary as, especially in pulmonary tuberculosis, congestive reactions may be induced.

Points in Technic

In all types of phototherapy the surpassing importance of rigid technic is emphasized, whether the means employed be the artificial light or the sun's own rays; but in no method is this technic more specific or more rigidly insisted upon than in Rollier's method, which is based on a regular schedule for time and extent of exposure, beginning first with the feet, then the legs, the thighs, abdomen, and so on, with a definite number of minutes for the exposure of each part.

This method seems to be the one followed by Aimes[6] in his treatment of war wounds. Aimes says that sunlight is seldom used correctly for this treatment. In the relief of local pain and general soothing influence and the subsequent normal aspect and functioning of the muscles, and supplementary to operations, he considers that the value of heliotherapy is incontestable. With the majority of heliotherapists, he holds that the exposures should be direct, without the interposition of gauze, glass, petrolatum, or any fatty salve. If the essential element is the ultraviolet ray, the necessity of no intervening substance can be readily understood, since these rays may be interrupted so easily, even glass cutting them off more or less completely. Aimes also contends that total exposures are necessary in all forms of surgical tuberculosis, although in non-tuberculous affections extensive regional exposures may suffice. This point is not universally conceded, as some heliotherapists divide treatments into three classes, even using very limited exposures in some diseases. The rigid schedule adopted by Aimes runs: exposure of feet for five minutes first day at three sittings at least an hour apart. By the fifth day he is giving about three exposures; feet thirty minutes, legs twenty minutes, thighs fifteen minutes, abdomen ten minutes, and forearm five minutes. The forearm is exposed for five minutes on the seventh day, protecting the cardiac region. By the twelfth day he employs total exposures of an hour with only a half-hour for the trunk and neck. After the third month the whole body may be exposed for several hours. This means that the head is protected in such a way that the eyes are shaded. Since the sunlight is considered bactericidal, no antiseptic dressing are used in this treatment.

Cololian (1919) says the rigid Swiss method is too slow and he begins by exposure of the affected part the first day for five or six minutes; the second day there is a regional exposure of about twenty minutes; and in cases where the patient seems ready for it he gives a total exposure on the third day, with head and genitals protected, of about twenty minutes. He adds that the cure should be prolonged for two weeks or a month after the healing of the wound. He says microscopic investigation has proved that fifteen or twenty minutes after a sun bath the number of intracellular microbes increases rapidly, but at the end of several hours or of several days of exposure the phagocytes carry on vigorously their microbicidal work.

Mieres,[7] in the *Presna Medical*, Argentine, reports the results of heliotherapy in cases of tuberculosis of kidney or bladder, or both. The heliotherapy was combined with tuberculin treatment and he reports that it gave excellent results.

Use in Cutaneous Tuberculosis

Doufourt[8] uses the sun rays in cases of cutaneous tuberculosis and reports success. He removes the cheesy matter before applying the sun treatment, and emphasizes the point upon which the majority of his colleagues agree, that surgical aid is indispensable to render heliotherapy effectual, since the sun has no chance to heal the living tissues until the dead tissues are removed. In cases of lupus, pressure is used upon the affected region to keep out the blood which would otherwise absorb too many of the healing rays. A lens is also used in treating this disease to exclude the ultraviolet rays. Doufourt says that if a suspicious lesion responds to heliotherapy it is probably tuberculous, since syphilitic lesions do not seem to yield to this treatment.

Mayer,[9] in speaking of the value of heliotherapy, adds the following to the usual list of diseases benefited: bone and joint tuberculosis, tuberculosis of skin, mouth, glands, pleura, and peritoneum, with occasional success in genito-urinary cases, and in pulmonary tuberculosis.

Use in This Country

Simpson[10] speaks of the successful use of the Kronmayer lamp observed by him in cases of angioma in which x-ray, radium and carbon dioxid snow had previously

4. Cololian and Freiburg: La Technique de l'Heliotherapie, Paris Med., 1918, iv, 64.
5. Armand-Delille, P. F.: Sun Bath Schools, Bull. de l'Acad. de Méd., Paris, June 24, 1918. Abst. Jour. Am. Med. Assn., 1919, lxxiii, 646.
6. Aimes, A.: La Technique de l'Heliotherapie, Presse Méd., 1919, xxviii, 525-527, also l'Heliotherapie pour les Blessés, Arch. de Méd. et de Phar. Mil., May, 1917. Abst. Jour. Am. Med. Assn., 1918, lxx, 574.
7. Mieres: Heliotherapy Plus Tuberculin in Treatment of Tuberculosis of the Urinary Apparatus, Prensa Med. Argentina, July 30, 1919. Abst. Jour. Am. Med. Assn., 1919, lxxiii, 1810.
8. Doufort: Heliotherapy for Cutaneous Tuberculosis, Lyons Chir., May-June, 1919. Abst. Jour. Am. Med. Assn., 1919, lxiii, 1858.
9. Mayer, E. E.: Heliotherapy in Tuberculosis, Am. Rev. of Tub., 1918, i, p. 12.
10. Simpson, C. A.: Treatment of Skin Diseases with Kromayer Lamp, Southern Med. Jour., 1918, No. 11, p. 669.

failed. He suggests that the danger of scarring is much reduced by using the lamp treatment. He says the lamp is most useful in psoriasis, and slow but good in lupus. The general sunlight baths have been used according to Rollier's methods by Webb[11] at Colorado Springs and, although he finds it good in bone, joint, or glandular tuberculosis, he is not as optimistic as Rollier.

Source of Success in Heliotherapy

The therapeutic value of light treatment, whether by natural or artificial means, has been clinically proved so definitely that there is little chance for argument as to its value, although there is some diversity of opinion as to exactly what diseases indicate this treatment. The question as to what element of the light accomplishes the results is something on which we have varying hypotheses but little proof. The heat rays, luminous rays, chemical rays are all credited with their special properties, which one or another advocate considers most beneficial. There are, however, two basic principles held forth as explanatory of the success of heliotherapy: one is that the ultraviolet rays are directly bactericidal; and the other, that what bactericidal action follows the use of light is simply the result of an increased metabolism and use of reserves, raising the general tone of the entire system, combined with the drying effect of treatments which are due to heat and air.

Sources of Ultraviolet Rays

The lamps used in artificial heliotherapy have for the most part been adapted to give unusual quantities of ultraviolet rays. On the other hand, the sun's rays have been recently used in the lowlands where, according to some authorities, the atmosphere has cut off the ultraviolet rays of the sun until their quantity is negligible. Rollier insisted that elevation and pure atmosphere are absolutely essential in order to be supplied with these rays.

The results of the use of artificial lights seem to have been as successful as the treatment by the sun itself, as experiences with it at the Finsen Institute and in a large number of places where either carbon arc lights or quartz mercury-vapor light are used, have proved. These lamps are planned to give a maximum proportion of ultraviolet rays and in some cases where used for whole body baths they have been supplemented by Mol in Holland, and Collins in Denmark by a surrounding ring of incandescent lamps because the original lamp was found not to supply sufficient heat for the comfort and well being of the patient. Those who use the artificial heliotherapy generally work on the theory that it is efficacious because the ultraviolet rays are directly bactericidal; at the same time the luminous rays are, of course, present in the light used, and hence the effect of the luminous rays or an effect other than directly bactericidal by the ultraviolet rays may exist.

Ray Bactericidal in Water and Milk

Experiments with various substances to prove the bactericidal value of ultraviolet rays have met with varying results. The great difficulty encountered is that the rays of short wave length have very limited power of penetration and can be completely cut off by even so slight a thing as a marked turbidity in water. Their ability to destroy bacteria in clear water has been demonstrated to such an extent that some cities in France use this method for purifying their water supply.

On the other hand, experiments in this country with milk resulted in the conclusion that colloids in the milk prevent the penetration of the ultraviolet rays to such an extent that the process is not practicable. Milk treated for a long time in extremely thin sheets and passed over a revolving drum did lessen in bacterial content, although the milk developed a peculiar taste after long exposure.

Penetrability of Human Tissues

Dausset[12] says that the different rays of the spectrum do penetrate the body if sufficient time is given, but all at different rates, and Wagner[13] says that it is a false assumption that the ultraviolet rays penetrate the surface only and that their penetration is greater than has been believed up to the present. He adds that the actinic rays of average length are strongly bactericidal.

Stimulate Phagocytic Action

Leriche[14] of Lyons says, in speaking of the treatment of war wounds, that the fluid exuding from wounds under treatment by sunlight was found upon microscopic examination to be full of microbes in suspension or leukocytes containing microbes. In comparing smears made before and after treatment he found the phagocytosis even more clearly exhibited. Cololian's remark on this subject has already been mentioned, namely that fifteen or twenty minutes after a sun bath he found the number of intracellular microbes increased but that at the end of several hours or several days of exposure the phagocytes carried on vigorously their bactericidal work.

Bactericidal Effect Indirect

The experiences of these men are typical of the reports of many, all indicating that sunlight, or arc light treatments are followed by distinct phagocytosis; but the question still remains whether the ultraviolet rays are directly responsible for this, or whether it is a secondary effect resulting from an increased metabolism.

Sonne[15] of Denmark, as a result of experiments made by him, thinks that chemical rays have very little to do with the therapeutic action of general light baths. Sunlight, arc light, mercury-vapor light, all have the property, he says, of heating the blood to a remarkable degree without heating the body tissues. It seems plausible to assume, therefore, that to this action their unmistakable therapeutic effect is due.

Dilbet[16] insists that the main therapeutic action of the sun consists in a reinforcement of the means of defense of the organism and that the rays of the sun do not act as do bactericides and antiseptics in the ordinary sense.

Martin,[17] in the report of a Committee on Phototherapy in November, 1918, says: "The action on metabolism seems to be the whole secret of the success in phototherapy."

Experiments at the Pasteur Institute

At the Institute Pasteur in France, de Laroquette[18] has contended since even as far back as 1911 that metabolic changes are the case. In the *Annales the L'Institute Pasteur* for 1918, he published the result of a series of labora-

11. Webb: Sunlight Treatment of Tuberculosis, Jour. of Outdoor Life, 1915, xii, No. 9.

12. Dausett, H.: Considerations sur la Technique et la posologie de l'heliotherapie artificielle, Bull. et Memoirs de la Societé de Med. de Paris, Nov. 7, 1913.

13. Wagner, K.: Physical Observations of Kromayer Lamp, Finsen Lamp, Uviol Rays, Alpine Sun Lamp, Allgemeine Med. Centr., Leitung, 1913, No. 5-6.

14. Leriche: Paris Letter, Jour. Am. Med. Assn., 1917, lxix, p. 54.

15. Sonne, C.: Mode of Action of General Light Baths, Hospitalstidende, September 10, 1919. Abst. Jour. Am. Med. Assn., 1919, lxxiii, 1404.

16. Dilbet: Bacteriological Control of Pus in War Wounds. Bull. de l'Acad. de Med., 1915, lxxiii, 23.

17. Martin, W. A.: Report of Committee on Phototherapy, Am. Jour. of Elect. and Rad., November, 1918, p. 277.

18. de Laroquette M.: l'Action Bactericide de la Lumiere Solaire, Ann. de l'Inst. Pasteur, 1918, xxxii, 170-192.

tory experiments undertaken by him in order to determine the value of the bactericidal action of the sun's rays. The experiments include the effect on bacteria in air, in liquids, and in solids. He comes to these conclusions: "Sunlight is not bactericidal except with long, strong, direct insolations." It acts on dry surfaces and where drying and evaporation takes place. "White light," he says, "accomplishes more than light of any color, blue being next in value, but far behind the white light."

He considers that the luminous rays are the effective element and says that filtration to prevent the ultraviolet or infra-red rays make no difference. He also concludes that heat is an effective element, since in experiments where ice was used the bactericidal action was diminished. The bacterial power of radiation, he says, is in the chemical action and also in the dehydrating action of the rays. The death of bacteria in sunlight is due to a great absorption of energy which effects dehydration, and congestion of protoplasm. The chemical rays are the most effective because the most absorbed by the bacteria and surroundings. Heat rays penetrate, but filtration soon makes them too weak for action. All radiations are destructive or exciting for protoplasm, according to the dose taken.

As to the bearing of his experiments on heliotherapy, he says that heliotherapy has bactericidal action only for surface sores, burns, and skin affections, but it cannot directly affect lungs, bones, and deeper structures.

Since the effectiveness of heliotherapy in cases involving these parts has been clinically proven, the explanation must be in the biotic action of sunlight on living tissues, general and local, an exciting and energizing action whose therapeutic importance cannot be exaggerated, and which results in a superactivity of the circulation and functioning of the organs and an increase of their means of defense. Continuing, de Laroquette emphasizes that this idea of the limited bactericidal action of the ultraviolet rays and the high biotic action of the heat and luminous rays was contrary to general opinion in 1911, but, although not yet admitted generally, it tends to be accepted by well informed authors.

Chaput[19] showed the part played by heat and hyperemia. Dilbet[16] insisted on his view that bactericidal action of the sun is the result of reinforcement of the means of defense. Leriche, Sencert and Dilbet showed that most of the microbes found before treatments are extra-cellular and after treatment almost all within phagocytes.

He concludes that this new doctrine in regard to the effects of heliotherapy leads to many important applications in the practice of heliotherapy, among them the use of filters as in radiology for the dosage, and the graduation of local and general insolation, the therapeutic importance of this latter idea, the assured continuity of treatments in spite of the temperature and the seasons by the installation of glass-enclosed galleries, and the eventual supplementing of the sun in these sun parlors as in horticulture by artificial sources of heat and light.

The new method of sun treatment advocated by Lovett of Boston is of interest in this connection. He speaks of the successful use of the method by M. de Thézac in Brittany. The treatment he describes differs from the usual sun treatment in that a lens is used, double convex, twelve inches in diameter, and mounted in a long tube so that all the rays used in the treatment pass through this lens. Lovett speaks of the excellent results obtained in the use of this treatment on suppurating wounds, the discharge being lessened and granulations taking on a healthier appearance along with a diminished sensitiveness of the wound.

The interesting point about this treatment in connection with the idea advanced by de Laroquette in regard to the small value of the ultraviolet rays in heliotherapy is that, since ultraviolet cannot pass through glass, the rays surely do not penetrate a thick convex lens. In the use of heliotherapy with this technic it would follow that the ultraviolet rays are discarded altogether; still the treatments are of proved value, as their use on wounds has shown.

The experience of Pitcher[21] in regard to the value of the use of powerful incandescent bulbs is another bit of evidence for the value of the heat and luminous rays in light treatment. Pitcher has been working along these lines, he reports, for a long time and has waited until he felt absolutely sure of his ground before reporting on the subject. He bases his belief that the light can affect more than superficial areas on the fact that the blood supply of the internal organs is in practically all cases closely related to the surface blood supply of that part. Since the light causes marked hyperemia of the surface tissues, by circulation of the blood, any benefit derived from light treatments can be carried to the deeper organs.

He speaks of the use of a five hundred candle-power incandescent lamp, and keeps the light as near as possible to the surface treated, in order to assure depth of penetration; he considers the treatment of the greatest value in mastoiditis or acute inflammatory conditions of the throat and chest. Since the incandescent light is not of value as a source of ultraviolet rays, this treatment involves particularly the use of heat and luminous rays.

The efficacy of light treatment, whatever its explanation, has been established. The chief objection to it is the length of time required and the consequent expense this entails. The risks incurred in the treatment are very slight, being confined to danger to the eyes, which may develop a conjunctivitis if not protected by adequate shading, and the possibility of blisters and burns, which are never of a dangerously severe nature. Its use as a supplement or substitute to x-ray treatments has been suggested because of the greater safety of the sun and arc light treatments. A suggestion has been made that the only present means of rendering heliotherapy a factor of much weight among the classes of people generally most in need of cure for the diseases indicated, would be to have Government assistance in defraying the expenses and thus make it possible to have many sanatoriums located in localities and climates where the maximum benefit could be derived, and yet with such an arrangement that others than the wealthy could take advantage of a treatment which necessarily is prolonged.

19. Chaput. Paris Letter, Jour. Am. Med. Assn., 1917, lxix, p 55.
20. Lovett, R. W.: Porsmeur Method of Sun Treatment, Jour. Am. Med. Assn., 1920, lxxiv.

Praises Japanese Medical Schools

Dr. Jacob Gould, who retires as the active head of Cornell University this month, has recently returned from Japan. In his address before the class who received the degree of Doctor of Medicine at Cornell this year he pointed out some of the wonders of medical science developed by the Japanese. A very close relationship is maintained between the medical school and the hospital in Japan. They are masters in sanitation. Their medical students are chosen by a selective process which develops the best material, and it is only after a most thorough examination that the student is permitted to proceed with his work.

21. Pitcher, H. F.: Phototherapy in General Practice, Am. Jour. of Elec and Rad., June, 1919.

HEALTH IN INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

EDUCATION IN INDUSTRIAL MEDICINE

A COMPLETE review[1] of existing facilities in colleges and in medical schools for the training or supplementary education of industrial physicians has been published by the United States Bureau of Labor Statistics. Included in the article also are descriptions of courses in public health and related subjects, development of industrial clinics separately or in connection with hospitals, medical colleges, and state and municipal departments. The article states that modern industrial medicine has received the endorsement of economists, sociologists, and physicians as one of the principal means upon which hope of securing better industrial and social conditions must be based.

The "new specialty," or "mass medicine" as it is frequently called, has been variously defined. Many physicians use the term industrial medicine as if its meaning were limited to the treatment of industrial accidents and occupational diseases, but this idea is rapidly giving place to a larger conception of its scope, based upon the growing recognition of industrial medicine, and particularly of that important part of it known as industrial hygiene as a very vital factor in preventive medicine. Perhaps the best definition is that which recognizes it as all branches of medicine and surgery in their application to the prevention and treatment of accidents and sickness in industrial workers. The term will here be used in this last sense, though the exactness of consistency with which it is applied to the curricula of the different institutions cited is not vouched for.

The study of specific poisons and diseases in relation to certain occupations is an old one, but it has never been a popular branch of medicine. In the last few years employers of large numbers of people have begun to estimate the advantage to themselves of retaining the services of special physicians to supervise the hygienic conditions in their plants and to attend their sick and injured employees, so that at present a considerable number of physicians are thus employed, while others are engaged in the care of Federal and other public employees. A few public clinics for the treatment of industrial accidents or diseases, or both, have also been established.

But, while such avenues have been opened for the practice of industrial medicine, physicians who wished to specialize on this subject have, up to the present time, found meager facilities offered for training for their work. The lessons of the war and of reconstruction have, however, drawn marked attention to economic waste through accident and ill health and to the rôle which industrial medicine can be made to play, by reducing these, in the adjustment of industrial and social problems. Very recently steps have been taken to provide adequate training in industrial medicine in a few of our educational institutions, while the subject is receiving more or less attention in a number of others.

After describing the specific courses in the Harvard University Medical School and the University of Cincinnati Medical School the article outlines the courses in medical colleges which include industrial medicine, namely, Rush Medical College, Ohio State University Medical College, University and Bellevue Hospital Medical College, Columbia University College of Physicians and Surgeons, Johns Hopkins Medical School, Detroit College of Medicine and Surgery, University of Michigan Medical School, Northwestern University Medical School, and Washington College of Medicine.

After describing the available facilities, the following conclusions are expressed:

A few educational institutions besides those mentioned offer work which approximates the minimum afforded by the ones named. Still others are planning more extended work along this line than has so far been attempted by them, but are not ready to make their plans public. Even among those mentioned, however, very few are giving any but the most general attention to the subject. Only a small proportion of the clinics or hospitals specializing on the treatment of industrial accidents and diseases are making a special study of diseases in their relation to occupational conditions.

That this apparent ignoring of the importance of industrial medicine is not due to any lack of public interest in general health conditions is argued by the multiplication in all parts of the country of clinics, dispensaries, and other means for safeguarding the public health and teaching general hygiene. Indeed, the country seems to be thoroughly aroused to the importance of conserving the public health, and partly awakened to a realization of the predominant rôle which preventive medicine must play in such work. But the extent to which preventive medicine is bound up with the conditions under which the workers do their work, the action of such conditions upon the physical and mental health of the workers, and the consequent reaction of the workers thus affected upon the community have apparently not yet made any strong appeal to the imagination or the sympathy of the public. The subject has not even made a claim, in any proportion to its importance, upon the attention of the medical profession.

The most plausible explanation of this latter fact lies in the slight encouragement which, in the past, has been given by educational authorities for the study of this branch of medicine. For no matter what degree of public or of other interest may be enlisted in the subject, the burden of practical accomplishment in industrial medicine rests with the medical profession. This view is stressed by authorities in the matter in replies received to the letters sent out by the Bureau. Dr. Emery R. Hayhurst of the Ohio State University says that the work included under the "rather new term 'industrial medicine'" does not seem to be attractive enough to the recent graduate medical students, and adds:

Our graduates (who have received the medical degree) seem all bound up with the idea of taking a year or two hospital work, and after that going into private practice. It has so far seemed impossible to instill the idea of "mass" medicine in our medical [post-graduate] students. On the other hand, our university students [sociological and other non-medical students] seem over-enthusiastic about the whole concept of "mass" medicine, hygiene, and public health.

Nor are the undergraduate medical students, in his

1. Monthly Labor Review, May, 1920.

opinion, attracted to the subject, as evidenced by the fact that none are taking the elective courses offered by the university. Additional evidence of this apathy toward the subject on the part of medical students is afforded by the failure of any students to enroll for the full course in industrial medicine offered this year by the University of Cincinnati, and by the small number of medical students enrolled in any of the elective courses in the subject offered by other institutions.

In this connection Dr. Hayhurst says:

This seems to be due to the fact that the curriculum specified by the Council on Medical Education of the American Medical Association, which is the standard for A-class medical colleges—to which some seventy-eight of the existing eighty-seven medical colleges in the country belong—is so filled with prescribed work as to allow little opportunity for undergraduate medical students to carry any electives. There is some question in my mind whether, in view of the socialization of medicine, the character of the prescribed work should not be modified by the Council on Medical Education so as to admit proportional training in medical sociology, medical economics, "mass" medicine, etc.

The result of the neglect of the subject by medical students is that industries are employing persons for industrial medical service who, it is said by industrial medical specialists, are not trained or especially qualified for the work and who, in consequence, bring discredit upon such service. Dr. Hayhurst thinks the most urgent feature of the situation at present is that of ways and means of arousing the interest of educational institutions in the subject, and he suggests, as a possible help in meeting the demands of the time for industrial physicians, the establishment of scholarships and fellowships in industrial medicine so as to encourage medical students to enter this field.

Now that a few of the more prominent medical schools are offering special courses in industrial medicine, and others are providing better facilities than formerly for training physicians along this line, there is ground for hope that a new interest may soon replace the apathy which has been displayed towards "mass" medicine by medical students. This hope gains its strongest force from the demand which is growing for the employment of well equipped and socially minded men as physicians in industrial plants.

AN INDUSTRIAL DENTAL DISPENSARY

By H. M. BREWER, D.D.S., Dental Director, National Cash Register Company, Dayton, O.

A REVIEW of the work of our dental department for the eighteen months just past but serves to strengthen our belief in the statement made by Sir William Osler that "There is not one single thing in preventive medicine that equals mouth hygiene and the preservation of the teeth." The grave complications we observe as the result of neglected mouths, the loss of time by the employees, and the loss of production to the company, only emphasizes the need of a better and more thorough dental education in the public schools.

It would be difficult to enumerate the hours lost to a company through the bad teeth of the employees. Many hours are lost through systemic disturbances which could be traced to bad teeth, but which are not so listed. If these figures could be accurately compiled, the result would be even more significant. It is not difficult to see that many hours of valuable time could be saved by the recognition and removal of the focus of infection from the mouth of the employees of any factory.

The equipment and personnel of the dental department of the National Cash Register Company differs in no way from that of any first class surgical dentist. Every employee has the advantage of laboratory diagnosis and advice that takes into account all factors, and the Department functions actively in the field of preventive medicine.

It is along these lines and the teaching of mouth hygiene and prevention that the dental dispensary of the National Cash Register Company is conducted. The work consists of examinations, first aid treatments, gum treatments, prophylaxis, extraction of diseased teeth and roots, x-ray diagnosis, temporary fillings, consultation, and advice. We distribute literature on the care of the teeth and give illustrated lectures to the employees. We do not do restorative dentistry; but when the teeth are examined, we give the employee a chart with every decayed tooth marked and urge them to go to a dentist at once and have the necessary work completed.

We work in close cooperation with the medical department, and this is absolutely essential if the best results are to be obtained. As Dr. Charles H. Mayo has so truly expressed it, "The next greatest step in medical progress in preventive medicine should be made by the dentists." The dental profession should accept this challenge by removing the focus of infection from the mouth of every patient whose resistance is low and whose family tree is dotted with rheumatic, cardiac, and other fatal lesions. Many physicians are abusing the theory of dental infection by indiscriminate condemnation of vital teeth that should not be extracted. Many dentists have recently expressed this complaint to me. It is right that the physician should send his patients to the dentist for the elimination of mouth infection, but the dentist should make the final diagnosis. Recently a physician of this city sent a patient to his dentist with five teeth marked for extraction. The dentist made a careful examination and found that all of the five teeth were vital and free from infection. By the use of the x-ray the trouble was found and eliminated. Had the advice of the physician been followed, five good teeth would have been sacrificed and the offending one left in the mouth. Close cooperation between the physician and dentist will eliminate this trouble.

Beginning January 1, 1920, a dental examination was

included with the medical inspection of every applicant in the factory of the National Cash Register Company. At the time of examination, the applicant is urged to have the mouth put in first class condition. If diseased teeth and roots are found, the applicant is asked to report to the Dental Dispensary at an early date and have them removed. All decayed teeth are marked on a chart which is given to the applicant so that he may know the true condition of his teeth.

We believe that the efficiency of the applicant will be increased by having the infection removed from his mouth

THE N. C. R. CO.
DENTAL CLINIC RECORD

Dept._____ Check No._____

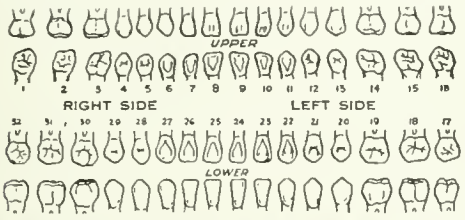
Name _____

Address _____

Nationality_____ Age____

Follow up marking _____ A—Means Gums Good B—Means Gums Fair C—Means Gums Bad

Tooth Brush Yes ☐ No ☐ Regular ☐ Irregular ☐



Date	No. of Tooth	Amal	Cement	Gutta-percha	Cleaning	Extracts	Nerve Removed	Roots Filled Material Used	First Aid Treatment	Abscess Lanced	Gums Treated	Mixed Treatments	Condition of Gums	Remarks

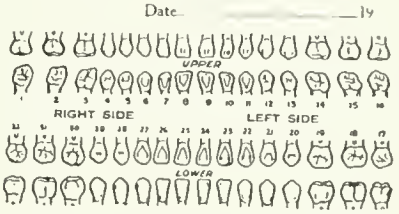
and his organs of mastication put in good condition. That a large percentage appreciate this is shown by the voluntary examinations that have heretofore been given in the dispensary and the report of the city dentists who have received the charts from the employees.

To show the relation of dentistry to medicine, a brief history is given of three interesting cases of dental infection which were treated in our Dental Dispensary with most gratifying results. Notice the loss of time, wages, and production that must necessarily accompany all of such cases in a factory:

A, age forty-seven years, was confined to his home for seven weeks with arthritis and failed to respond to any treatment. His physician advised dental examination. At the end of the seventh week he visited the dental dispensary. Both knees and ankles were affected. He could not get his left hand to his face and had very little use of right arm. Examination disclosed seventeen diseased teeth, which included many dead teeth and broken down roots. The remaining teeth were badly affected with pyorrhea. We advised extraction of all his teeth. Two teeth were extracted at this sitting and at subsequent visits all of the teeth were removed. After his second visit marked improvement was noted in his condition and at the end of two weeks he reported for duty. He was not entirely well, but his condition was such that he was able to do his work. His condition gradually improved and in six months he had gained thirty pounds in weight. The arthritis has not recurred.

N. C. R. Co. Dental Clinic

Date_____ 19



Examination of M_____
teeth.
Remarks _____

B, age forty-two years, reported to the dental dispensary on Monday morning after being off duty two weeks on account of arthritis in the right shoulder which prevented use of the arm. We extracted the upper first bicuspid root on left side, the upper cuspid on right side, curetted sockets, and removed pus sacs from each. This employee reported for duty on Friday morning of the same week with pain entirely gone, having recovered excellent use of his arm.

C, age forty years. For a period covering many months this employee had been afflicted with rheumatic lesions which were especially troublesome in the lower extremities. At times, his condition was such that he worked under great difficulties and had to be favored in his work. Many days were entirely lost and during these attacks he required assistance to go up and down stairs.

THE N. C. R. CO. DENTAL CLINIC
DAILY RECORD

DATE ____ 19__ TOTAL

Examinations of New Employees	
Not Without Tooth Brush	
Extractions	
Amalgam Fillings	
Cement Fillings	
Gutta-percha Fillings	
Prophylactic	
Abscess Treatments	
First Aid Treatments	
Consultation	
Nerves Removed	
Roots Filled	
Gum Treatment	
Miscellaneous Treatment	

____ Physician

Upon examination nearly all of his teeth were found to be loose with pyorrhea and there were many pus pockets. His teeth were extracted and in a few weeks the rheumatic lesions had entirely disappeared. He is now able to do any kind of the work required of him by his department.

These cases are typical of a great many which are encountered in the handling of medical and dental work in a factory of seven thousand employees. We have recently installed an x-ray machine to our equipment which will be used in the routine examination of employees. It will undoubtedly be of inestimable value in diagnosis.

N. C. R. Co. Dental Dispensary Record Card

Name_____ Age_____

Dept._____

Operation _____

_____

*Date*_____

Dispensary Service Free

The service in the National Cash Register Dental Dispensary is entirely free to the employees and all visits are made on the time of the company.

The Dispensary was opened in May, 1918, with one equipment and one full time dentist. In July, 1919, another equipment was installed and another full time dentist employed.

A complete record is kept of all operations. For the year 1919, the work included. Examinations, 1,777; prophylaxis, 1,726; extractions, 1,685; first aid treatment, 1,173; gum treatments, 430; temporary fillings, 94; x-rays, 76; consultation, 166; miscellaneous, 1,183, making a total of 8,310 treatments.

At the present time we are engaged in an oral hygiene campaign for the children of the employees. These children attend the Saturday morning meetings in the N. C. R. schoolhouse, where they are given instructive talks on health habits. The teeth are examined with the purpose of acquainting the parents with their condition. In the examination of 900 mouths we found decay in 1,936 permanent teeth, the ages of the children ranging from six to fourteen years. This is conclusive evidence that parents must be awakened to the vital necessity of saving these six year molars and the other permanent teeth for their children. Prevention must begin with the children.

The field of industrial dentistry is large and does not stop with the work at the factory. Its messages are carried to the homes by the employees and its effects are far reaching. The number of industrial dental dispensaries are constantly increasing, and in a few years dental service will have an important place with the medical department of every large manufacturing and mercantile institution.

THE EXPERIENCE OF MEDICAL DEPARTMENT AT NITRO, W. VA.*

By J. A WATKINS, M.D., Medical Officer in Charge, Department of Industrial Medicine and Public Health, University of Cincinnati; Medical Director, Lunkenheimer Company, Cincinnati

THE manufacturing area was extensive, the transportation of the injured necessarily slow, and the character of the injuries and accidents, by reason of the manufacturing processes being carried on, was such that it was necessary to construct and equip in various parts of the plant five emergency stations. With one exception, these were similar, being designed to afford a few beds for temporary care of the severely injured, to administer emergency relief, to serve as dressing stations for old injuries, out-patient relief, and small drug and equipment dispensary. The termination of the plant's activities prevented a thorough trial as to the success of such methods of medical relief. One station had a capacity of forty beds and was used during the time the General Hospital was being constructed and equipped.

In all emergency work and redressings a standard method of treatment and procedure was determined upon and in general followed out. Each attending physician was assigned to a small dressing table on which were placed all necessary dressings and equipment for most cases. Several such units were in the dressing room. The patient was admitted by the record clerk, where pertinent data on the case were obtained. He was then assigned to a physician and, when taken care of, passed out by a different door. A large number of patients were thus satisfactorily handled in a short time.

Emergency Relief Measures

Difficulty was experienced with many workmen in rendering this relief. Though endeavors were made continually, and in many ways, to impress upon men the necessity of reporting to a physician promptly after sustaining an injury, regardless of its severity, many delayed until infection

*The fourth installment of an article on the experience of the medical department at Nitro, W. Va., published in successive issues of Modern Medicine, beginning in April, 1920.

had been contracted; others failed to report for dressing and continued care; while still others attempted to attend themselves. It was encouraging, however, to note that such undesirable practices were gradually abandoned.

The following table gives the number and classification of injuries, together with the number of infections treated:

CLASSIFICATION OF INJURIES

	Injuries	*Infections*
Amputations		
Fingers	5	3
Legs	1	..
Feet	2	..
Burns and Scalds		
Arm	203	1
Hand	78	3
Fingers	68	..
Leg	28	..
Foot	10	..
Face	25	..
Others	110	..
Contusions and Abrasions		
Arm	286	1
Hand	640	2
Fingers	1,491	9
Leg	639	5
Head	178	..
Face	146	..
Others	982	1
Fractures		
Arm	9	..
Hand	3	..
Fingers	8	..
Skull	8	..
Foot	31	..
Ribs	24	..
Lacerations and Punctures		
Arm	251	11
Hand	780	18
Fingers	1,568	5
Leg	149	6
Foot	1,124	..
Head	261	..
Face	96	..
Others	171	..
Sprains and Strains		
Back	184	..
Ankle, foot or leg	297	..
Arm or wrist	204	..
Others	190	..
Miscellaneous		
Dislocations	17	..
Foreign body in eye	241	..
Freezing	2	..
Vaccination and inoculation	15	..
Gas fumes	7	..
Heat retention	89	..
Death	12	..
Total	10,632	65
Grand total	10,697	

Ambulance and First Aid

First aid activities of the Medical Department were directed along two lines of endeavor: (1) the acquisition and maintenance of suitable locations throughout the plant of first aid apparatus, equipment, and material. First aid boxes were constructed, equipped, and suitably housed in various localities in the plant and their location designated by a red light and prominent sign; (2) the instruction of the better informed employees, and particularly those occupying responsible positions about the plant, in standard and approved methods of procedure in rendering relief. Such instruction was given in lectures by medical officers, safety engineers, and by written communications from the Safety Department and the Medical Department. They dealt in the main with the control of hemorrhage, treatment of concussion, fracture, electric shock, the asphyxiation by gas and water, and the several particular industrial hazards met with in this plant. There were distributed about the plant, at suitable locations, ambulance stations to which, unless the particular case did not permit, injured men were taken immediately upon turning in the ambulance call. This did away with much confusion, and the ambulance was able to go directly and rapidly to a certain point to receive the patient. Correct records were kept from the time of the receipt of the ambulance call, of the driver, the medical officer accompanying, the time of its return, and disposition of the case. The type of ambulance used is discussed under the section of transportation.

Complete data on ambulance service would have been of value, but were lost by fire. The following are of interest, though incomplete. More than three thousand ambulance calls were answered. Twenty per cent of all calls were made during the first hour the men went to work, while 16 per cent of all calls were made during the last hour of work. The remaining 64 per cent were rather evenly distributed except for calls for sickness, as distinguished from injury, 90 per cent of sick calls coming in about midnight. The average time of making one call was twenty-four minutes.

The city dispensary was located in the center of the residential section of Nitro City. It was ninety feet long and forty feet wide, almost rectangular, and one story high.

There were a reception hall, office space for attending physicians, and rooms for the following divisions: drug dispensary, surgical clinic; eye, ear, nose, and throat department; gynecological, pediatric , and medical units. Toilets, with locker rooms adjoining, room for nurse's quarters, as well as a laboratory, a supply room, and a dental department, were provided. This dispensary proved to be of great value in offering medical and dental out-patient relief to dependents of employees at Nitro.

The dispensary handled 644 minor surgical cases; 7,201 medical cases, of which 2,224 were Flu, were treated, making a total of 7,845.

Wherever illness occurred in the family and it was not convenient or expedient, under the circumstances, for the patient either to report to the out-patient dispensary or to come to the hospital, a medical officer was detailed to call at the house. This system is not recommended, as the privilege was abused.

The isolation hospital consisted of two wards 180 by thirty-two feet, parallel with each other, and was situated about one hundred feet north of the group of five wards which flanked the north end of the General Hospital. These two buildings

East porch of the General Hospital, Nitro, W. Va.

were identical and, with the kitchen, formed an isolated unit.

It was desired to carry out and demonstrate some modern methods of procedure regarding the prevention of cross infection in hospitals. The success of these methods of procedure, however, depend so much upon the intelligence and training and, also, on the conscientious performance of duty and the scrupulous observation of rules by hospital attendants that, under conditions existing at Nitro, these methods were not deemed safe. A plan was adopted, therefore, which was as similar to that desired as was considered safe, that is, the grouping of similar infections in small six-bed wards.

During the period under discussion the service records of the isolation hospital show the following cases admitted and cared for:

COMMUNICABLE DISEASES OTHER THAN VENEREAL

Disease	*Admissions*
Diphtheria	6
Epidemic cerebrospinal meningitis	5
Erysipelas	6
Measles	27
Mumps	11
Pneumonia, lobar	18
Pneumonia, broncho	25
Scarlet fever	6
Smallpox	8
Whooping cough	3
Trachoma	45

VENEREAL INFECTIONS

Disease	*Admissions*
Balanitis	2
Chancroid	141
Epididymitis	59
Gonorrhea	1,663
Gonorrheal ophthalmia	1
Herpes genitalis	1
Inguinal adenitis	24
Prostatitis	21
Syphilis	328
Urethral abscess	3

The total normal bed capacity of the General Hospital was 520. The group known as the General Hospital was made up of the following units: One garage, one orderlies' quarters, one nurses' home, one superintendent of nurses' bungalow, one pharmacy, one administration building, one resident officers' bungalow, one dental, x-ray, eye, ear, nose and throat building, one receiving ward, one male nurses' quarters, four double wards, one maternity ward, one laboratory building, one operating pavilion, one commissary department building, two private room wards, one laundry and boiler room building, one mortuary, one storehouse, and two attendants' quarters.

This hospital was located at the terminus of the main road on the edge of the reservation. It had a frontage on this road of approximately one-half mile and ran back to a depth at its widest point of one thousand feet.

A detailed description of these units cannot be given here, though the accompanying illustrations give a good general idea of the layout. The

Explosives Plant, "C"
Army S. GENERAL HOSPITAL
PRIVATE WARD BEDS, PATIENT'S ROOM
No. 932 March 19, 1918.
Graham, Anderson, Probst & White Boiling Co'rs.
Thompson-Starrett Co., Construction Managers.

A Private ward of the General Hospital at Nitro, W. Va.

buildings were characteristic of the general construction of housing at Nitro, being one story frame and plaster structures. There was steam heat from a central heating plant; electric light and power were provided, and also gas light for use in emergency. The main corridor of the hospital, 880 feet long, ran north and south through the hospital area, and the various buildings comprising the hospital group were joined to this by communicating corridors.

A detailed discussion of the work of the General Hospital would be of little interest. It was constructed and operated for the same purpose and conducted in general in the same manner as an institution of similar character and size in any urban community. The buildings were on the whole the best constructed and finished of those at Nitro. The hospital was completely sup-

plied with the most modern equipment available. In organization and conduct an attempt was made to follow plans developed by several of our most successful institutions. The operation of this unit was, on the whole, I believe, satisfactory. This success was due largely to the work of the superintendent, Miss Ida Gilbert, of the American Red Cross.

A great disadvantage was the undesirable separation of units. This was, under the circumstances,—type of building, fire hazard and such conditions,—unavoidable. Difficulty was also experienced in obtaining satisfactory hospital personnel other than nurses and physicians.

In the Surgical Division 1,157 cases were treated. There were 197 major operations and thirty-four nose and throat operations. Fifteen obstetrical cases were handled.

The X-Ray Department was fully equipped in the most modern manner and most excellent results were obtained by the roentgenologist, Mrs. E. B. Liddle. Five hundred forty-eight plates and 1,005 observation were made. Very little therapeutic use was made of the facilities at hand.

Discussion of Surgical Cases

There were only thirty-seven cases of abscesses admitted to the surgical unit, including three of the foot and six of the hand. As no case of tetanus was recognized, it is significant that all puncture wounds were given antitetanic serum, 500 to 1,500 units.

There were eighteen cases of appendicitis, being about the proportion obtaining in most civilian communities.

There were very few acid burns serious enough to require hospital treatment, and only four cases of burns from explosions, none of which was severe. Steam burns were most numerous, ten in number, none fatal.

The contusions numbered 105, and lacerations of serious nature were admitted. The larger groups in this division are back muscles, scalp wounds, foot, ankle, and leg injuries.

The fractures attended were an interesting study, about 10 per cent of these being compound. Of these fractures, the bones of the lower leg and forearm were the most commonly involved. The fibula was broken more often than the tibia. There were three cases involving both the ulna and radius, all in the left arm, one being treated with bone graft, one by open reduction, and one by extension. The ultimate results were good. Among the six fractures of the skull there were no deaths, though one case became comatose twelve days after injury and demanded a decompression for increased intracranial pressure. A large number of those examined at the employment office had hernias, though only thirty-four cases were operated upon. No strangulated hernias were taken care of by the surgical unit, but there were five incarcerated hernias, and eight hernial sacks which had become irritated by pressure of trusses. The remainder were hernias developing more or less suddenly, causing the patient to suffer discomfort or pain in the region of the hernia whenever exertion was more than usual. One clean hernia case became grossly infected after operation.

An unusual accident was "sand smothering." This patient was assisting in the dumping of a car loaded with sand. Slipping off the edge of the hopper, he was quickly covered with fine sand, and not until he was drawn from the small end of the hopper about two minutes later was it considered that he might still be alive. His nose, mouth, and upper respiratory apparatus contained a considerable amount of sand. For about three days the patient at times brought up sand from his trachea, sometimes mixed with blood. He suffered no other injury.

Details of Medical Service

The cases referred to the medical service by the receiving ward numbered 3,537; of these, 3,107 were diseases of the respiratory tract, only seventy-six of which were other than influenza or its complications; 268 involved the gastroventral tract. Sixteen were cardiorenal diseases, while of the remaining 79, 21 were malaria, 19 arthritis due to various causes, and 26 acute alcoholism. One case of heart block was admitted. The ventricular pulse rate varied between 30 and 40 per minute.

The Laboratory Division

This part of the General Hospital was small but well equipped, and was of great assistance to the work at hand. More than twelve thousand reports were made upon request by this department, covering the entire field of laboratory activities.

Scope of Dental Division

A dental division was established, both with the view to offering relief in neglected cases and of encouraging better oral hygiene habits and prophylactic practice among workmen and their families, especially among the school children. A well qualified dentist, having two assistants, was placed in charge. Relief and advice were available at the emergency hospital, at the main dental clinic of the General Hospital, and at the civic center dispensary. As has been the observation of others, a large percentage of persons required dental advice or service. This division handled 3,044 patients for thirty different complaints.

(To be continued)

FEE SCHEDULES UNDER WORKMEN'S COMPENSATION

In Ohio, after prolonged discussion and conference a new fee schedule was established by the Industrial Commission of Ohio, substantially increasing medical and surgical fees under the Workmen's Compensation Act. This schedule will be of widespread interest to physicians for the reason that the Ohio Compensation Act is universal and compulsory and all industrial accidents come within its scope. The *Ohio Medical Journal* states, "The new fee schedule is the result of the spirit of cooperation which has existed between the industrial commission and the headquarters of the State Medical Association."

A number of physicians worked with Dr. T. R. Fletcher, chief medical examiner of the Industrial Commission, including Dr. J. T. Baldwin, president of the State Association; Dr. C. D. Selby, Toledo; Dr. W. P. Chamberlain, Cleveland; Dr. J. R. Beiter, Canton; Dr. R. H. Wilson, Martin's Ferry; Dr. Robert Carothers, Cincinnati; and Dr. George P. Dale, Dayton.

Believing that the fee schedule thus arranged would be of special interest to the readers of MODERN MEDICINE, we reprint the detailed schedule.

Miscellaneous

Minor injuries (first dressing) day at office	$ 3.00
Minor injuries (first dressing) home or hospital	5.00
Minor injuries (first dressing) night (9 P. M. to 6:30 A. M.)	7.00
Subsequent treatment at office	1.50
Hospital visit	2.00
House call	3.00
Administration of anesthetic by physician (minor operation)	5.00
Administration of anesthetic by physician (major operation)	10.00
Administration of anesthetic by hospital anesthetist	5.00
Assistant to surgeon (physician) minor operation.	5.00
Assistant to surgeon (physician) major operation.	10.00
Removal foreign body eye (ordinary)	2.00
Suturing small cuts or lacerations, office	5.00
Injection antitetanic serum (including cost of the serum)	5.00
Plaster casts (including material and depending on location)	$5.00 to 50.00
Wassermann examination	5.00
Blood examination	5.00
Urinalysis (chemical)	2.00
Urinalysis (microscopical and chemical)	5.00

Special Operations

Laparotomy—minimum fee with after care	100.00
Note.—On account of vast difference in such cases, claim for services rendered should be based on special correspondence.	
Herniotomy—single (including after care)	75.00
Herniotomy—double (including after care)	100.00
Tendon suture	25.00
Reducing hernia by taxis and after care	5.00
Note.—Truss will be paid for upon presentation of statement showing cost.	

Dislocations

Flat rate including reductions and subsequent treatment.

In a case of more than one dislocation, the fee shall be the major one plus an additional 50 per cent of the fee prescribed for each of the others herein classified.

Shoulder	$ 35.00
Clavicle	50.00
Elbow	50.00
Hip	50.00
Knee	50.00
Patella	5.00
Ankle	25.00
Finger	10.00
With 50 per cent additional for more than one.	
Toe	5.00
With 50 per cent additional for more than one.	
Lower jaw	10.00

Fractures

Flat rate, including reduction and subsequent treatment.

In a case where multiple fractures occur the fee shall be the major plus an additional 50 per cent of the fee prescribed for each of the others as herein classified.

Humerus	$ 75.00
One bone of the forearm	50.00
Both bones of the forearm	75.00
Carpal bones, one or more	15.00
Femur	100.00
Tibia	50.00
Fibula	25.00
Tibia and fibula	75.00
Patella, with operation	100.00
Patella, without operation	50.00
Os calcis	30.00
Astragalus	30.00
Tarsal other than os calcis or astragalus	15.00
Rib—single or multiple	10.00
Nasal bones	10.00
Phalanx, metatarsal or metacarpal	15.00
With 50 per cent additional for additional fractures.	
Pelvis—a proportionate fee on the above basis will be determined according to conditions present	.....
Coccyx, without operation	10.00
Coccyx, with operation	35.00
Lower jaw (not including dental work)	40.00
Upper jaw—non-operative	15.00
Upper jaw—operative fee determined according to conditions	.....
Clavicle	50.00
Scapula	40.00
Skull, non-operative	25.00
Skull, operative	100.00
Vertebrae—minimum	50.00
Note.—On account of vast difference in such cases, claims for additional services should be based on special correspondence.	

Compound fractures—An additional charge of 50 per cent may be added in infected compound fractures.

Wiring or plating—An additional charge of 50 per cent may be added when it is necessary to perform open operation. This is not in addition to amount allowed for compound fractures.

In unoperated complicated fractures in which union is not taking place within ninety days, and additional charge may be allowed at the discretion of the Industrial Commission.

Amputations

Flat rate including amputation and subsequent treatments.

Note.—The minimum fee in the items under this section are intended to be applied in those cases where the injuries were so serious that death resulted within one week following the operation. The maximum and intermediate fees are intended to cover more extended subsequent attention.

In cases of more than one amputation, the fee shall be the major plus 50 per cent of each of the others as herein classified.

Hip	$100.00	$150.00
Leg, at knee or above	75.00	125.00
Foot, ankle or below ankle	50.00	75.00
Arm, at shoulder joint	75.00	100.00
Hand, wrist, forearm or arm	50.00	75.00
One toe or finger	.....	25.00
With 50 per cent additional for more than one.		

General Information

Reconstructive work to be paid for must be taken up with the Industrial Commission and fee decided upon prior to operation. This rule will be rigorously enforced.

A proportionate fee will be paid by the Commission in any case terminating fatally within a few hours.

In plastic operations and all other surgical procedures not included in this schedule, fees will be paid in keeping with other fees outlined.

In the event one physician renders first aid and the claimant is subsequently referred to another physician for completion of treatment and after care, due to lack

of proper facilities or for any other reason, a fee will be paid by the Commission in keeping with the services rendered and in addition to the flat rate schedule. In all cases it is incumbent upon the physician to set forth clearly the services rendered.

Itemized statements shall be furnished upon request of the Commission, if fee is claimed in excess of rate as given above.

In minor injuries daily dressings will not be paid for unless the necessity for same is clearly set forth.

Fees shall not be approved for the services of more than one attending surgeon over the same period of time. This does not apply to consultant, anesthetists, assistants, or cases where the need of an ophthalmologist is clearly shown.

Fees for high frequency or other electrical treatment will not be approved unless specifically authorized by the Commission.

Extra fees for dressing material and drugs will not be approved except in unusual cases wherein an extraordinary amount of such material or drugs is used. In such cases, the material or drugs used will be paid for at cost.

Diseases of the Eye

Note.—These fees will be approved only to physicians of recognized standing whose practice is strictly limited to eye, ear, nose, and throat work.

1. Foreign body of cornea and sclera:	
(a) Attached to cornea or sclera but not imbedded	$ 2.00
(b) Simple imbedded	3.00
(c) Difficult or complicated—including cases requiring use of magnet	$5.00 to 15.00
2. Cauterization of corneal ulcer	5.00
3. Laceration of lids or "conjunctiva" requiring suturing	10.00
4. Extraction of foreign body from inside the eyeball with or without magnet	$50.00 to 75.00
5. Treatment extensive burn of the cornea (initial treatment)	$5.00 to 10.00
6. Penetrating wounds:	
(a) Not requiring surgical interference	10.00
(b) Requiring surgical interference (ex.—lacerated cornea with prolapsed iris requiring iridectomy)	50.00
7. Enucleation of eyeball (flat rate including after care):	
(a) Simple enucleation	50.00
(b) Implantation operation	75.00
8. Plastic operation on lids	$50.00 to 100.00
9. Extraction of traumatic cataract (flat rate including after care)	100.00
10. Discission of capsule (flat rate including after care)	50.00
11. Operation on pterygium (flat rate including after care)	25.00
12. Consultation	10.00
13. Complete ophthalmological examination and report	10.00
14. Complete ophthalmological examination and report for court purposes and only upon order of the Commission	25.00
15. Refraction	$5.00 to 10.00
16. Office calls	2.00
17. Home calls	4.00
18. Hospital calls	3.00

Note.—Inasmuch as this schedule is to be used by specialists of recognized standing, it will be necessary for the specialist to indicate on fee bill filed that his practice is limited solely to diseases of the eye, or the eye, ear, nose, and throat, and that he is recognized as a specialist along these lines in the community in which he practices.

Rules on X-Ray

The following rules and schedule of fees will govern the making of x-ray examinations of injured workmen protected by the Workmen's Compensation Act and payment thereof:

(1) X-ray examination may be made upon request of the attending physician in any case where is can be clearly shown that such an examination is essential in the diagnosis or treatment of an industrial case.

(2) It is understood that before the Industrial Commission may assume responsibility for such examinations the claimant shall make application to the Commission, properly certified to by the employer, and recognized by the Commission as a compensable claim.

(3) A fee of $10 will be allowed for x-ray examinations and must not be exceeded except under the following conditions: (a) An additional charge of $5 will be allowed if an examination of two or more parts of the body is necessary. (b) A fee of $5 will be allowed for subsequent examinations if such are necessary. (c) An additional fee of $5 will be allowed for the accurate localization of a foreign body in the eye.

(4) A written report and fee bill accompanied by prints or films in duplicate must be on file with the claim before charges will be approved. Reports of x-ray examinations should give the number of the claim, name of the claimant examined, name of the employer, name of the attending physician, date of examination, date upon which the injury was sustained, a complete interpretation of the examination made, and should be signed by the roentgenologist making the examination.

INDUSTRIAL HEALTH LITERATURE

The National Safety Council recently issued the following brief summary of important sources of health information for industrial work:

A good deal of the most valuable information on this subject has come to us from our own members in the form of reports describing the well organized health supervision of their respective employees.

Another valuable source of information is the U. S. Public Health Service, Washington, D. C., which has issued many popular publications on such subjects as studies of the medical and surgical care of industrial workers, industrial hygiene, common drinking cups, common towels, communicable diseases, disinfectants and disinfection, mosquitoes, rat extermination, sanitary legislation, sewage disposal, venereal diseases, etc. The *Public Health Reports* issued weekly by this same government department also contain, in each issue, one or more leading articles on some timely subject relating to hygiene, sanitation, or public health. Other features of each issue are the statistical information relating to the prevalence of disease throughout the United States and sanitary legislation including state laws, city ordinances, and court decisions.

The British Government has also issued invaluable "blue books" on the health of munition workers, industrial health and efficiency, industrial fatigue, etc. These British publications may be obtained from H. M. Stationery Office, Publications Branch, Imperial House, Kingsway, London, W. C. 2 England, at a nominal charge. Many of the states and larger cities also issue publications containing worthwhile health articles.

Such magazines as the following devote much space to industrial health problems: *American Journal of Public Health*, Chicago; *Hospital Management*, Chicago; *The Journal of Industrial Hygiene*, New York City; MODERN MEDICINE, Chi-

cago, and *The Modern Hospital,* Chicago, Ill.

Our richest source of industrial health information is the proceedings of the Health Service Section of the National Safety Council and the health service bulletins issued by the Council. Standard books on health and proceedings of various health associations are also used.

PRONE PRESSURE METHOD OF RESUSCITATION

THE prompt and efficient use of the prone pressure method of resuscitation from electric shock has brought back to life many persons who were apparently dead. The manipulations are not to be stopped or interrupted until the patient breathes or *rigor mortis* sets in. The rules follow:

(I) Free the victim from the circuit immediately.—Quickly release victim from the current, being careful to avoid receiving a shock. Use any dry non-conductor (rubber gloves, clothing, rope, board) to move either the victim or the conductor. Beware of using metal or any moist material. If necessary, shut off the current.

(II) Instantly attend to the victim's breathing.—As soon as the victim is clear of the conductor rapidly feel with your finger in his mouth and throat and remove any

Fig. 1. The patient is to be placed at once in this position.

foreign body, such as tobacco or false teeth. If mouth is tight shut, pay no more attention to it until later. Do not stop to loosen the patient's clothing, but immediately begin actual resuscitation. Every moment of delay is serious. Proceed as follows:

(a) Lay the patient on his belly, one arm directly extended overhead, the other bent at elbow and with face to one side, resting on the hand or forearm, so that nose and mouth are free for breathing (Figure 1).

(b) Kneel straddling the patient's hip bones or opening the pants pockets; place the palms of your hands on the small of the back, with fingers spread over the lowest rib, the little finger just touching the lowest rib, the thumb alongside of your fingers, tips of fingers just out of your sight, as in Figure 1.

(c) While counting one, two, and with arms held straight, swing forward slowly so that the weight of your body is gradually but not violently brought to bear upon the patient. (Figure 2.) This act should take from two to three seconds.

(d) While counting three, immediately swing backward so as to remove the pressure, thus returning to the position shown in Figure 3.

(e) While counting four, five,—rest.

(f) Repeat deliberately twelve to fifteen times a minute the swinging forward and backward—a complete respiration being accomplished in four or five seconds. Time with your own breathing.

(g) As soon as this artificial respiration has been started, and while it is being continued, an assistant should loosen any tight clothing about the patient's neck, chest or waist. Keep patient warm.

(2) Continue resusciation, if necessary, four hours or longer, without interruption until natural breathing is restored, or until a physician declares *rigor mortis*—stiffening of the body—has set in. If natural breathing stops after being restored, use resusciation again.

Fig. 2. The weight of the body is gradually brought to bear on the patient.

(3) Do not give any liquid by mouth until the patient is fully conscious. Place ammonia near the nose determining safe distance by first trying how near it may be held to your own. The assistant should hit the patient's shoe heels about twenty times with a stick or something similar and repeat this operation every five minutes until breathing commences.

(4) Give the patient fresh air, but keep him warm. When patient revives keep him lying down and do not raise him. If doctor has not arrived give patient one teaspoonful of aromatic spirits of ammonia in a small glass of water if he can swallow.

Fig. 3. While counting three return to this position.

(5) Carry on resuscitation at closest possible point to the accident. Do not move patient until he is breathing normally without assistance. If absolutely necessary to move he should be placed on a hard surface, such as a door or floor for conveyance. Do not stop or interrupt resuscitation for an instant.

(III) Send for doctor.—If alone with victim, do not neglect immediate and continued resuscitation in order to call a doctor; start at once, the first few minutes are valuable. If other persons are present, send one of them for a doctor without a moment's delay.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

GARBAGE DISPOSAL AND THE PUBLIC HEALTH

OUR viewpoint in regard to the proper disposal of the solid wastes of the city has passed through three distinct phases during the past two decades.

Twenty years ago the general trend of opinion among sanitarians was distinctly in favor of the incineration of mixed refuse in the English type of high temperature destructor. Cremation in American furnaces without forced draft never had any valid scientific backing; but incineration at high temperature, as exemplified at Westmount, just outside of Montreal, and, later, at West New Brighton, Staten Island, was shown to be an efficient and inoffensive process. All the earlier reduction plants were operated under contract with private companies which exacted payment of considerable bonuses, so that from a financial standpoint cremation and incineration, as practised at that time, were almost equally costly. On esthetic grounds incineration was generally preferred, in the belief, somewhat cynically stated by Dr. S. H. Durgin, that "reduction is always a nuisance, and cremation is not always a nuisance."

Gradually, however, a change took place in the estimate which was placed upon the respective merits of incineration and reduction. On the one hand, the operation of incinerating plants, while most satisfactory from a sanitary standpoint, proved even more costly than had been anticipated, and nowhere in America was any serious attempt made to reduce this cost by utilizing the heat energy generated, as had been done in British towns. On the other hand, the nuisance from reduction works was somewhat reduced by improved construction and methods of handling; and, above all, experience with municipal operation of reduction plants—as at Columbus—showed that this process should really yield a substantial profit instead of constituting an item of expense. The private companies, in response to the knowledge acquired by this municipal experience, were forced to make contracts on a new basis. In New York, for instance, when the contract for garbage disposal was renewed, the company paid the city twenty-five cents a ton instead of receiving a bonus of thirty cents a ton, as it had done before. Six years ago, it seemed that, in spite of the danger of local nuisance, reduction was the method of choice for all cities of considerable size, on account of its material economic advantages.

The economic reactions of the war have, however, upset all calculations here, as in so many other fields. Complaints of nuisance due to the reduction plant have continued; but the large revenues once derived from this process have disappeared. The cost of labor and fuel and equipment tends to outstrip the value of grease and tankage, and between 1916 and 1919 the economies effected by the housewife reduced the available grease content to be extracted from garbage from sixty-seven to fifty pounds per ton. In Bridgeport, Conn., the city has been forced to take over a reduction plant which the contracting company could no longer operate, even with a heavy bonus. In New York both reduction plants are closed down and garbage is being dumped at sea.

The pendulum today swings back to a more primitive method of disposal than either incineration or reduction, to the simple procedure of feeding the garbage to hogs. Many small cities, and a few large ones—Worcester and Providence, for example—have clung persistently to this practice; and it has appealed particularly to the practical shrewdness of the city fathers of New England. Experience has shown that hog farms may be conducted so that they shall not be a source of offense; and that such farms may constitute a very considerable source of revenue. Recent contracts entered into at Newark, N. J., and Baltimore, Md., with steps toward the establishment of hog farms at Washington, D. C., indicate the rapid growth in favor of this method of handling the garbage problem, even for cities of large size. At all three of these cities hog feeding has been adopted after actual experience with reduction or careful study of its possibilities. The Baltimore plant will be the largest piggery in the world, supporting fifteen thousand hogs, with an estimated return to the city from 55,000 tons of garbage of $165,000 a year. Where the method of feeding is applicable and can be satisfactorily adapted, cost of disposal, sanitation, the utilization of its economic content are all served. Of the sixty-six cities estimated as having over 100,000 population in 1916, twenty cities, or about 30 per cent have this method of disposal.

A particularly interesting phase of the situation lies in the fact that this method of garbage disposal is urged not only as a financially economical one, but as a procedure of importance to the general public weal as a method of conserving foodstuffs. The United States Food Administration lent all its influence during the war to the furtherance of the production of pork from municipal garbage. In 1918 alone forty cities of over ten thousand population adopted the feeding method of disposal, which should provide from fifteen to twenty million pounds of pork *per annum*.

Thus we find that garbage, considered in the early days of the filth theory of disease, as a health deficit to be disposed of as inoffensively as possible, becomes a health asset, an important contribution to the food resources of the nation. EDITOR.

SALIVA-BORNE INFECTIONS: THEIR TRANSMISSION THROUGH EATING UTENSILS

By JAMES G. CUMMING, Lieutenant Colonel, Medical Corps, United States Army; CHARLES B. SPRUIT, Captain, Medical Corps, United States Army, Vladivostok, Siberia; and FRITZ A. REUTER, Captain, Medical Corps, United States Army, Washington, D. C.

MILLIONS have been expended for the purpose of providing pure water supplies, thereby protecting the populace against the intestinal-borne infections. This protection has given results which are wholly satisfactory and prove the efficacy of this line of attack. Can a similar expenditure, if properly directed, meet with as encouraging results in the protection of the populace against the saliva-borne infections?

Health education has proceeded to a point where it is no longer necessary to argue the advantage of personal hygiene. Its value is conceded even when it is not uniformly practised.

But individual habit does not afford protection against mass action, and the possibility of high exchange of infectious organisms in eating houses makes essential their sanitary control.

So simple a measure as boiling water in dishwashing would eliminate one of the major avenues of transmission of diseases which exact in early deaths a far greater toll than can be charged to any other group of infections.

Today, the saliva-borne infections cause the majority of deaths. Chief of these are tuberculosis and pneumonia. Since the toll in early deaths from these diseases is far greater than that from any other group of infections, it would be justifiable to make a concerted attack against these alone; for if this attack is properly executed and directed against the major avenue of transmission, there will be an immediate reduction in the transmission rate, and an automatic lowering of the mortality rate. In addition, it is to be pointed out that successful control of the above mentioned infections, through blocking the major avenue of transmission, will automatically control the many other saliva-borne infections. One cannot well conceive of the different saliva-borne infections as having different routes of travel from the infected to the non-infected, so that preventive measures which apply to one of these infections should be equally applicable to all. Preventive measures applicable to the control of tuberculosis will be applicable with equal force to the control of pneumonia, measles, or meningitis. These control measures for this group of infections must be directed against the major avenue of transmission. Our chief object must be to reduce the transmission rate by as great a percentage as is possible of accomplishment. This reduction in the transmission rate accomplishes two important factors in preventive medicine: (1) it reduces the sick rate, and (2) what is of greater importance, it reduces the carrier rate. In order that this may be done our greatest effort must be directed against the major avenue of transmission. There will then be few cases, but few sources, and but few deaths.

It is interesting to note the evolution of medicine from the preventive viewpoint. For centuries the chief object has been that of cure. During the last few decades, much attention has been paid to actual prevention. In the main, prevention of the saliva-borne infection has consisted in the isolation of the sick and the carriers, the quarantine of contacts, the use of the cubicle and the mask, and the vaccination of susceptibles. In many cities and in the Army, these preventive measures were carried out with great care; but, in view of the high mortality rate from this group of infections in cities, and the much higher rate in the Army, where the regulations were more strictly adhered to, it is apparent that the *modus operandi* was wholly inadequate to accomplish the desired results. It is doubtful if these preventive measures had any marked beneficial effect in prevention. Why? Because the principles on which these preventive measures were built are epidemiologically unsound. They are delayed reactions; they only deal with the individual after infection has occurred, and ineffectually attempt to control transmission through an attack against the minor avenues of distribution.

On the basis of "theory of case and source elimination," it has been pointed out that the effectual control of the saliva-borne infections depends on an attack through the major avenue of distribution only, and that then the minor avenues become insignificant and of no practical importance. In view of this principle, and the added fact that there are always many unrecognized

cases and carriers which act as sources, it at once becomes evident that our control measures of the past have been of but meager value in preventing transmission.

It is not the identification of cases and carriers and their isolation which we should aim at—this is delayed or tardy reaction—but rather our aim must be to prevent these cases and carriers. We must not get away from the epidemologic fact that in the saliva-borne infections, the proportion of carriers to cases is very great; that the carrier state persists for a considerable period; and that the large percentage of carriers results from the wide prevalence of these infections. In view of this consideration, is it not obvious that adequate control through the identification and isolation of the carrier is fraught with many difficulties and is of practically no value in ultimate and successful control? How, for instance, would we succeed if we were to attempt to control tuberculosis by such a procedure? The process would necessarily have to be continuous through many generations, and there would be no immediate reaction in reducing the transmission rate. The procedure is impossible in measles, influenza, and a number of other diseases of unknown cause, and has been wholly wanting in the experience of recent epidemics. The ultimate and successful control of the saliva-borne infections—their prevention in epidemic form—cannot, then, depend upon the control of the animate—the individual carrier, as maintained by Flexner[1] but rather our reliance must be based on the principle of applying sanitary measures on a wide scale to intermediate inanimate object carriers. This must be universal prevention; it must apply to all alike,—both the carrier and the non-carrier. The populace must acquire the habit of practising those measures which aim for universal prevention. These measures should not be instituted at times of threatened epidemics with the view of attacking them in their incipiency, but they must be continuous and of a habit forming nature. These preventive measures will necessarily be directed to the control of inanimate objects conveyors of infection, and not alone to the animate or original source of the infection.

Control Through Mass Action

If, then, the major avenue of transmission through inanimate objects is closed by universal mass action, by habit action, the importance of the animate fades into insignificance. The carrier is no longer a source of new infection. The problem is no longer one which deals with the individual but rather with a blocking of the major avenue of distribution through the inanimate.

Just as in the insect-borne diseases the intermediate insect carrier must be determined, then controlled and, finally, eradicated, so also in the saliva-borne infection the intermediate inanimate object carriers must be determined and then controlled, not necessarily by eradication as in the case of insects, but by the application of appropriate and practical preventive measures which block transmission through these objects. It is not the treatment of the sick, the identification of the carrier, nor the isolation of the contact, which will solve the problem of saliva-borne disease mortality, but it is the immediate reduction in the transmission rate which is of paramount importance in the prevention of sickness and the saving of lives. This reduction can be accomplished only by a determination of the major avenue of distribution and the universal application of a practical procedure which will break one or more links in the chain of transmission.

It has been our aim in the recent epidemics in the Army and the civil population to make a study of the avenues of transmission of the saliva-borne infections and to determine the relative importance of these several avenues of distribution. It was appreciated that more accurate knowledge as to the transmission was necessary for successful control. It was necessary to seek out the avenues both by field observation and laboratory research and, having determined the major avenue of transmission, it would then be possible to block this avenue and thereby reduce the transmission rate. By reducing this rate, there would be a reduction in cases, a reduction in carriers, and a reduction in sources.

Contrary to the generally accepted theory that this group of infections was air-borne, it was our impression that they were spread by indirect contact, and chiefly through the contamination of intermediate inanimate objects. As immediate conveyors to the oral or nasal cavity then, hands and eating utensils would be the chief offenders. Our preventive measures would therefore necessarily deal with the inanimate and not the animate, for it is obvious that inanimate conveyors make up the bulk of transmitting avenues. Furthermore, it would be folly to attempt through control of the individual to prevent contamination of these objects, for such contamination is inevitable.

In a previous report[2] it was pointed out that in the civil population the use of machine washed dishes gave a protection against influenza of 85 per cent. It was reported later[3] that in public in-

1. Flexner: Epidemiology and Recent Epidemics, Jour. Am. Med. Assn., 1919, lxxiii, No. 13.

2. Lynch and Cumming: The Distribution of Influenza by Indirect Contact: Hands and Eating Utensils, Am. Jour. Pub. Health, January, 1919.

3. Cumming: Influenza-Pneumonia in 370 Public Institutions as Influenced by Dish Washing, Am. Jour. Pub. Health, November, 1919.

stitutions having a population of 252,186 the use of machine-washed dishes gave a protection against influenza of 75 per cent. In still another report[4] it was shown that the use of boiling water for washing mess kits reduced the morbidity by 80 per cent and the mortality by 88 per cent. Although it is not the purpose of this paper to discuss mess sanitation among troops, it might be well to point out that the epidemiologic studies in the Army gave us definite information which was later applied to the studies of transmission in the civil population as here presented.

In the Army, warm mess kit wash water was the chief intermediate conveyor. From this central focus the infection radiated by the hand and mess kit avenues of distribution. This avenue is a five link chain[4] and the second and fourth links are double. These double links and the centralization of the infection, both of which were common to army messing, account for the high case rates and the explosive outbreaks of the saliva-borne infections in these groups of individuals. In the Army, as repeatedly shown, preventive measures consisted in control of the inanimate conveyors—the use of boiling water for washing mess kits. Of all preventive measures this one gave the highest degree of satisfaction and, since it reduced the case rate by more than 80 per cent, it may be concluded that the major avenue of distribution of saliva-borne infections in the Army was through the unsanitary method of washing eating utensils.

Parallel in Civil Population

Having in mind these epidemiologic considerations as applied to troops, one might ask whether or not there is a parallel avenue of transmission in the civil population. Let us repeat that in the Army the major avenue of transmission was a five link chain; that the immediate conveyors—the second and fourth links—were double and that these double links, hands and eating utensils, and the moistened state of the intermediate link, the wash water, account for the highly explosive nature of the outbreaks, especially that of influenza. In the civil population, there is a five link chain, but this is through dry inanimate objects which many people handle and by the hand to mouth route of travel. This is not the major avenue of distribution and is probably responsible for a small percentage of transmissions; but among civilians, we have a three link chain which parallels the five link chain in the Army. This chain of distribution is through eating utensils which are washed by unsanitary methods. The eating utensils of the case or the carrier become contaminated with saliva which is laden with infection. These utensils are washed in only warm water; they are not disinfected, and many infectious organisms still adhere to them after completion of the washing process. This is only a three link chain; the two end links are moist which makes for facility of transmission from the oral cavity of the donor to that of the recipient. The eating utensils are used for only one purpose; there is a great exchange of these from meal to meal between the members of the messing group and furthermore, they actually enter the mouth. In a former report[5] it was shown that by the usual hand method of washing only 30 per cent of tubercle bacilli were removed from eating utensils used by tuberculosis individuals.

If tubercle bacilli still adhere to utensils after they are washed, it is reasonable to assume that this finding holds true for the many other saliva-borne infections; in fact, this had been shown to also be the case with the group of pneumonia producing organism.[6]

In the Army camps the chief focus of distribution for any saliva-borne infection as, for instance, influenza—was the company mess kit wash water. All men of the company came in contact with this perfectly centralized focus, with the result that susceptibles readily became infected. The facility of transmission and the centralization of the distributive foci are the factors responsible for the explosiveness of epidemics in the camps. The susceptibility of the age group is not included as a factor in determining the degree of explosiveness because, as has been shown,[4] even though there may be a large percentage of susceptibles in a group, an epidemic may be prevented by the application of modern sanitary precautions.

We have pointed out the parallel in the major avenue of transmission for the Army and the civil population, and have indicated that this avenue in the former group was more prolific than in the latter. Have we then similar foci of distribution in the two groups? As a result of our epidemiologic studies we believe that the public eating place is the most highly centralized primary focus of distribution in the civil population. Since these foci for the civil population are not as highly centralized as those for the Army, and since the avenues of distribution are less prolific in the former group than in the latter, we have an explanation of the more highly explosive character of the virus epidemic in the Army than in the civil group.

On the basis of the importance of eating utensils as the major avenue of transmission and of

4. Cumming: Sputum-Borne Disease Transmission with Epidemiologic and Bacteriologic Research. The Military Surgeon, Feb., 1920.

5. Cumming: Can The Tuberculosis Transmission Rate be Reduced? Jour. Am. Med. Assn.

6. Cumming and Spruit: Transmission of the Pneumonia Producing Group of Organism. In Press.

the public eating place as the chief focus of distribution it was determined to make a laboratory investigation of eating utensil sanitation in public eating places. These investigations included a study of the bacterial counts of hand and machine washing dish water, and of spoons just before and after washing by the hand and by the machine washing methods. In Table I there is presented a consolidation of these investigations which were carried out during the winter and early summer of 1919 at the Port of Embarkation, Newport News, Va. The technic of collecting and examining the specimens was as follows: The dish water specimens were collected from the restaurants in 200 cc. quantities in sterile containers. In order to determine the efficiency of washing eating utensils, it was necessary to make bacteriological examinations of these before and after they were washed. Since the spoon actually enters the mouth of the one who uses it, this utensil was chosen as the subject of our investigations. At each visit to the public eating place, unwashed but used spoons as well as washed spoons were collected in lots of twenty-five each. Each lot was placed in a separate wide mouth bottle containing 200 cc. of sterile water of a temperature of approximately 45° C. and shaken for three minutes. By using this amount of water the ladles of the spoons only were submerged so that there was no contamination of the wash water from the handle of the spoons.

As shown in the tabulation, these investigations were carried out on specimens from eating places where the hand method was used and from those where the dishes were machine-washed. Three of the restaurants installed machines while the work was in progress, so an excellent opportunity was afforded for comparison. It will be noted that 134 specimens of dish water and that 2,610 spoons, or 125 different lots of spoons, were subjected to bacteriologic examination.

While the average bacterial count of hand washing dish water was 6,792,500 per cc., it will be noted that the count of machine washing water was but 960 per cc., a reduction by the use of the latter method of 99.98 per cent. This marked reduction shows the advantage of mechanical washing, by which method the water is used at or near the boiling point. Is there a reduction in the bacterial count of machine-washed eating utensils over that of hand-washed, corresponding to this reduction in the wash water counts for these two methods of washing? The average bacterial count per spoon for those unwashed, was 674,500, while that for spoons which had been washed by hand was 154,000 per spoon. By this method of dish washing, then, but 78.82 per cent of the organisms were removed. In contrast to this will be noted that for machine-washed spoons the average count was but 4,790 organisms per spoon, or a reduction of 99.17 per cent. This reduction corresponds to that of the dish water counts for the two methods of washing. In other words, a determination of the bacterial count of dish water from public eating places gives a fair indication of the efficiency of eating utensil sanitation.

These favorable sanitary results secured by the use of the mechanical washer over that of hand washing are accounted for by the use of boiling water by the former method. When dishes are hand washed, they are not rendered aseptic, for the water is of such a temperature as can be readily withstood by the hands. The average temperature of 72 specimens of hand washing dish water was but 44.5° C. In contrast to this low temperature, which has no sterilizing effect on bacteria, it is to be pointed out that of fifty-

TABLE I.—Comparison of Bacterial Counts of Hand and Machine Dish Washing Methods

Restaurant.	HAND WASHING					MACHINE WASHING		
	Before Washing		After Washing			After Washing		
	Bacterial Count per spoon	No. of spoons	Bacterial count per spoon	No. of spoons	Dish water count per c. c.	Bacterial count per spoon	No. of spoons	Dish water count per c. c.
A	465,000	50	180,000	50	16,430,000	3,600	150	900
C	197,000	50	73,000	50	750,000	3,360	150	840
N	1,730,000	100	273,500	100	6,700,000	2,600	150	650
U	Washing machines already in use.				.....	5,600	175	1,400
W	Washing machines already in use.				.....	4,000	125	1,010
Miscellaneous	300,000	750	46,300	800	3,300,000*	....	...	....
Average	674,500	...	143,000	...	6,792,000	4,790	...	960**
			78.82% removed by hand			99.17% removed by machine		99.98% reduction

*Average count 76 specimens.
**Average count 22 specimens.

five specimens of machine washing water, the temperature was 91° C. When dishes are hand washed, they should first be treated with a liberal amount of boiling water. This water should not be robbed of its sterilizing action by the immediate addition of cold water, but full advantage of this action should be taken by allowing the water to cool of its own accord to such a temperature as the hand can stand.

The Practical Application

The interesting points in connection with the results of these investigations are as follows (1) From the esthetic standpoint the almost universal practice of reducing the number of organisms on eating utensils by only four-fifths is to be condemned. This partial reduction is definite information that the utensils are not clean. (2) Of practical importance is the fact that, since eating utensils enter the mouth where they become contaminated with organisms from that cavity, it is evident that if only four-fifths of these are removed by the washing process there must be a considerable exchange of mouth organisms among individuals through hand-washed eating utensils. (3) The use of boiling water during the process of cleaning eating utensils, whether cleaned by hand or machine, renders them sterile in so far as the acute saliva infections are concerned.

There is abundant proof that eating utensils are the major avenue of transmission of the saliva-borne infections. In former reports it was pointed out that of eating utensils used by cases or healthy carriers of the hemolytic Streptococcus, 87 per cent were still contaminated with this organism after they had been hand washed. Also, that 25 per cent of the animals inoculated with rinse water specimens of hand-washed eating utensils used by open tuberculous patients, died from tuberculosis, and that eating utensil asepsis or pasteurization in the Army, in public institutions, and among civilians, gives a protection of 80 per cent against the acute virus infections.

As indicated in the tabulation here presented, we now know that of the total organisms on eating utensils, 21.8 per cent remain adherent thereto after the utensils are used and hand washed. This would seem to indicate the reason for the high carrier rate, the high sick rate, and the high mortality rate of the saliva-borne infections—in brief, the high transmission rate—and to explain the futility of the attempt to control this group of diseases on the theory that they are wholly air-borne. We also know that there are many permanent carriers of tuberculosis and of the pneumonia producing organisms, and that during the epidemic period of the acute virus infections—as influenza—temporary carriers, and perhaps also chronic carriers, make up a comparatively large percentage of the population. We are all familiar with the healthy carrier of diphtheria and the mild unrecognized cases and carriers of poliomyelitis and meningitis. With these two factors, the insanitary eating utensils, and the high carrier rates of the saliva-borne infections, in mind, it is apparent that there is a high rate of exchange of infectious organisms between individuals through eating utensils.

In the control of this group of infections the public eating place must be eliminated as the central focus of distribution. This can be accomplished by eating utensil pasteurization. Managers of the more progressive public eating places take advantage of economy in the use of the mechanical dishwasher with its boiling water. The public health officer will realize that the use of the machine has an advantage in addition to economy; *viz.*, there is no public health measure today equal in importance to the pasteurization of eating utensils in public eating places. The value of pasteurization of eating utensils in the home by the use of boiling water should become common knowledge. This procedure should become a universal practice, both in the public eating places and the home. Its universal application as a control measure in the saliva-borne infections will accomplish more than will all the other measures combined.

Just as there is a reduction in the bacterial count of polluted public water supplies by filtration and chemical treatment, so also there must be a reduction in the bacterial contamination of eating utensils by the use of boiling water.

Conclusions

(1) First and foremost in the control of the saliva-borne infections is a reduction in the transmission rate. This will diminish the large mass of carriers, who are far more important as sources of distribution for this group of infections than the actual cases in the hospital.

(2) Further attempts should be made to determine with accuracy the major and minor routes of transmission and the several links in the chain of these routes.

(3) From our studies it appears that eating utensils rank foremost as transmitting agents of the saliva-borne infections. These utensils either enter the mouth or touch the lips; they become contaminated with organisms of the oral cavity; they are still contaminated after they are hand washed, and the next user acquires this contamination.

(4) The use of utensils contaminated with or-

ganisms of one or more of the saliva-borne diseases does not necessarily mean infection, but this major avenue of transmission is so prolific and so universal that a large number of saliva-borne infections occur and cause more deaths than all other groups combined.

(5) There is no avenue of indirect transmission more frequent than through insanitary eating utensils. We eat three times a day with utensils previously used by others; these utensils are not rendered aseptic; they actually enter the mouth—the normal portal of entry of the saliva-borne infections, and preventive measures must take them into account.

(6) Our greatest hope for the control of this group of infections, especially tuberculosis and the fatal secondary pneumonias, lies in the universal practice of eating-utensil pasteurization by the use of boiling water. This applies alike to the home and the public eating place. In the home, eating utensils should be scalded before they are washed; in the public eating places they should be scalded in the process of mechanical washing. In public eating places this procedure of cleansing is not only economical, but its value as a public health measure in eliminating the primary center of saliva-borne disease distribution should be recognized.

ARE WE CONTROLLING VENEREAL DISEASE?

By JULES SCHEVITZ, General Secretary, Oklahoma Tuberculosis Association, Oklahoma City, Okla.

OF ALL the products of American enterprise and ingenuity brought out by the last four epoch making years, none has challenged the interest of the thinking world more decisively than the American plan of venereal disease control. It is the answer of a young, idealistic, essentially clean thinking nation to a problem that has baffled civilization for centuries. It is America's contribution to a public health question of international scope and when, in addition to being an ideally comprehensive program, it proves itself to be a thoroughly practical one, it commands respect.[1]

Plan a Fourfold Program

The above passage expresses in no uncertain terms the attitude of health workers in this country toward the "American Plan" for venereal disease control. We are very proud and enthusiastic, and rightfully so, of the high standards and ideals upon which our program is based. We are ready to admit that we have selected the best features of the various continental plans and have combined them in one single program which we believe to be the most effective yet designed.

The fourfold program under the American plan includes law enforcement, medical, educational, and recreational measures. The suppression of prostitution is the goal of the law enforcement efforts; proper and adequate medical facilities for the treatment of venereally infected individuals is the aim of the medical program; education of the people with regard to the nature, modes of transmission, prevention, and treatment of venereal disease, and the fact that sexual continence is entirely compatible with good health are the functions of education; and provision of wholesome recreational facilities for a healthful outlet of the natural energies constitutes the fourth phase of the plan.

The program recommended by the United States Public Health Service to bureaus of venereal disease in state health departments includes the following:[2]

(1) Securing the reporting of venereal infections in accordance with State laws or State boards of health regulations.

(2) Carrying on repressive measures, including the isolation and treatment in detention hospitals of infected persons who are unable or unwilling to take the necessary measures to prevent themselves from becoming a menace to others.

(3) Establishment of free clinics for the treatment of venereal diseases, and extending the facilities for early diagnosis and treatment by providing proper laboratories to make exact diagnosis and examination to determine when patients might be released as non-infectious.

(4) To carry on a general educational campaign to inform the public as well as infected individuals regarding the nature of these diseases and the manner in which they are spread.

The suggested budget as recommended to state divisions of venereal disease allows 50 per cent for treatment, 20 per cent for repression, 20 per cent for education, and 10 per cent for administration.[3] With the exception of two states and the District of Columbia, the Public Health Service has received cooperation from every state as required under the Chamberlain-Kahn Act, and several million dollars have been spent for the conduct of this program.

There can be no doubt as to the value and beneficial results derived from our present campaign.

1. Public Health, Michigan State Board of Health, February, 1920, p. 61.

2. Pierce, C. C.: Public Health Service Program for Nation-wide Control of Venereal Diseases, Public Health Reports, May, 1919, p. 1056.

3. Typical Budget for Effective Anti-Venereal Disease Activities, Public Health Reports, 1919, p. 504.

Records show[4] that from July 1, 1918, to September 30, 1919, 171,391 cases of gonorrhea and 128,751 cases of syphilis were reported throughout the United States. Many million pieces of literature were distributed by the Public Health Service and the American Social Hygiene Association. More than four hundred clinics have been established where venereally infected patients may receive treatment.

Merits of Present Methods

When we come to ask the question as to what effect our campaign has had upon actual prevention of venereal disease, we find ourselves at a loss to give a definite response. The control of venereal diseases is very similar to that of other communicable diseases, and is based upon prevention of infection, reduction in morbidity, and reduction in mortality. If we fail in the first instance we attempt the second, and, failing there, we must direct our efforts toward the third. In the control of tuberculosis very little can be accomplished toward the prevention of infection, though a great deal can be done in reducing morbidity after infection. Unfortunately, this is not the case with the common venereal diseases, because of the brief period elapsing between infection and active disease.

According to available statistics, the fatality of the venereal diseases is not very high. In other words, the reduction of mortality is not the most pressing need. Since very little can be accomplished towards reducing morbidity, it is evident the great saving lies in the prevention of infection. An examination of the expenditures in our venereal disease campaign indicates that a large proportion of our funds is devoted to treatment. While the value of prompt and adequate treatment cannot be discounted, it is reasonable to expect that an increasing proportion of the funds be devoted toward attaining the goal of preventing infection.

A considerable share of the funds is used for purposes of education, which must of necessity be directed mainly at prevention; yet there seems to be some question in the minds of certain workers whether the present form of education is all that is needed. This is particularly true in England, where there is a distinct division of opinion as to the merits of our present methods.

We all admit the disastrous effects of venereal diseases; we are all familiar with numerous instances of innocent infection and misery resulting from it. The charge has been made[5] that by omitting from our campaign instruction in prophylactic measures "we are actually guilty of encouraging the spread of venereal diseases." In all the vast amount of material prepared in this country on the subject of venereal disease control, the question of prophylactic instruction is conspicuous by its rarity. In the few instances where the subject is broached it is veiled under a discussion of "early treatment." The United States Public Health Service, in referring to the "early treatment" in the venereal disease program states[6]: "It is not designed to establish prophylactic or early treatment stations primarily as such, but all clinics should be prepared to intelligently administer this treatment to voluntary applicants who give a history of exposure within a few hours immediately preceding their application."

The controversy which has been going on in England for the past several months regarding the place of venereal prophylaxis brings out many points which probably apply equally well to the program in the United States. During the war the National Council for Combating Venereal Diseases conducted a program similar in most respects to that carried on in this country. Emphasis in the educational campaign was placed on teaching the dangers of venereal infection and the value of continence. A number of army medical officers who claimed that this campaign had but little appreciable effect on the prevalence of venereal diseases instituted a system of personal prophylaxis with excellent results. As recounted by one officer,[7] "I gave careful instructions and repeated them daily to all men joining the station. . . . Immediately venereal diseases vanished from our units. For five months I did not see a freshly contracted case. In two years and four months only seven cases originated among my men." This experience is by no means confined to this particular instance. The following table[5] indicates similar results in the United States Navy where prophylactic measures were employed:

Number of Treatments, Failures, and Percentages for Each Hour After Exposure

Hours Subsequent to Exposure	Number of Treatments	Number of Infections	Per Cent of Infections
1	1,180	1	0.08
2	1,172	7	0.59
3	521	1	0.77
4	330	2	0.61
5	199	3	1.57
6	321	5	1.58
7	277	6	2.27
8	390	16	4.22
9	283	10	3.62
10	214	11	5.14
More than 10	216	16	7.40
Total	5,103	81	1.58

4. Thomson, Alec N., M. D.: Progress and Eradication of Venereal Disease, Mod. Hosp., 1920, xiv, 209.

5. Riggs, Charles E., M. D.: Venereal Prophylaxis in the Navy, Social Hygiene, 1917, iii, No. 3.

6. Place of Early Treatment in Program of Venereal Disease Control, Public Health Reports, April, 1919, p. 789.

7. Reid, Sir Archdall, M. B., C. M., F. R. S.: Prevention of Venereal Disease, Public Health, London, 1919, xxxiii, No. 1, p. 5.

8. Circular Letter of Society for Prevention of Venereal Disease, Wansey Bayley, Honorable Secretary, 143 Harley Street, London, W. I.

Of the 1,180 treatments given during the first hour after exposure there was but one infection. According to Dr. Riggs, there was considerable doubt as to whether this case was genuine or not.

Applied to Civilian Control

The English army medical officers referred to above, upon return to civilian life, desired to bring into practice among the civilian population the methods found so effectual in the army. The opponents of this plan promptly charged that the widespread knowledge of methods of self-disinfection would result in increased immorality by making illicit relations safe, and it was also claimed that disinfection would not always prove effective. The latter objection can be promptly overruled by the experience of numerous medical officers both here and abroad. The contention that spreading information concerning self-disinfection leads to increased laxity in morals is probably of little weight. "Unless it can be demonstrated that the fear of venereal disease tends on the balance to keep men moral, any attempt to obstruct the application of suitable sanitary measures to these disorders is merely an act of vengeance," according to Sir Archdall Reid in an article on the "Prevention of Venereal Disease."[7] It is a question whether men who understand most about these diseases are the most moral.

Ablution rooms were maintained throughout the army, but this measure was found less effective than furnishing the men with the disinfectants or advising them where they might be obtained.

This discussion became even more intense since the publication of the Report of the Interdepartmental Committee which sustained the measures recommended by the National Council for Combating Venereal Diseases. The advocates of personal prophylaxis include the leading medical officers of health in England as well as numerous physicians throughout the country, and these workers have become even more stirred to action since the publication of the unfavorable report. In order to crystallize the movement for prophylactic instruction there has been organized another national organization known as the Society for the Prevention of Venereal Disease, whose aims and objects are stated as follows:[8] (1) To instruct the public to (a) the vital importance of self-disinfection at the time of exposure to risk as a preventive of venereal disease, and (b) the methods of application. (2) To advocate such further steps for the prevention of venereal disease as may be deemed advisable.

Those persons desiring to take out membership in this organization are obliged to sign the following declaration: "I hereby declare that in my opinion it is essential for the reduction and final elimination of venereal disease, that the public should be instructed in the principles and practice of immediate self-disinfection; and I further accept and endorse the aims and objects of the Society."

Prevention a Social Gain

Sir John J. W. MacAlister, secretary to the Royal Society of Medicine, speaks of the moral issue injected into this controversy as follows:[9] "There is glib but unthinking talk of the so-called moral question; but to me the highest morality should regard it as the worst crime against God and man to allow the innocent to suffer for the guilty. If in combating this scourge it is even necessary to make sin easier and safer for the sinner, that is a matter between the sinner and his God, but it is our duty to leave no stone unturned to insure that the sinner shall not in his sin bring untold suffering, disease, and death upon the innocent."

The outcome of this discussion in England will naturally have very marked effect in this country, and it might be a desirable thing to bring about a similar discussion here. In an outline of the activities for reducing the prevalence of venereal disease in the United States Army it is stated that[10] "The provision of prophylactics in regimental infirmaries . . . is imperative in any sane attack upon venereal diseases." Exner in his studies on prostitution and its relation to the army on the Mexican border states[11] "the venereal prophylactic measures carried out in the Army have in large degree proved effective in preventing venereal diseases." and, further, "whichever way our sympathy may lie in the discussion of the desirability of 'making prostitution safe,' by employing prophylactic measures, we must recognize that this has been a gain not only in army efficiency, but apparently a great social gain."

If there be any real merit in the use of prophylactic measures in the civilian population, as is urged by the leading health authorities in England, certainly the importance of preventing infection is of sufficient weight to warrant its most earnest consideration.

DAMAGES FOR LEAD POISONING

Under a recent decision of the Supreme Court of Illinois it was held that an employee may recover damages for illness caused by lead poisoning resulting from employer's failure to safeguard employees against lead poisoning. This case may be found cited in *Labanoski vs. Hoyt Metal Company*, 126 N. E. 548.

9. MacAlister, Sir John J.: Venereal Disease Prevention and the Moral Question, Public Health, London, various Mss.

10.—Method of Attack on Venereal Diseases in the United States Army, Social Hygiene, 1917, iii, No. 4.

11. Exner, M. J., M. D.: Prostitution and Its Relation to the Army on the Mexican Border, Social Hygiene, 1917, iii, No. 2.

TUBERCULOSIS IN CLEVELAND—A SURVEY OF IMMEDIATE NEEDS

By D. B. ARMSTRONG, M.D., Special Investigator, Cleveland Hospital and Health Survey, Framingham, Mass.

CLEVELAND has the fortunate habit of frequently taking account of stock. It is a community which believes in frequent appraisal, and seems to be desirous of facing its problems with courage and constructive vision. A recent manifestation of this spirit is the general health and hospital survey carried out under the direction of the Cleveland Hospital Council, a group in the Cleveland Federation of Social Agencies. This health and hospital survey, under the supervision of a special committee headed by Mr. Malcolm F. McBride of Cleveland, has endeavored to cover many of the vital health factors of Cleveland, including hospital facilities, dispensary service, infant welfare work, public health nursing, school hygiene, industrial medical work, social hygiene, mental hygiene, and tuberculosis. The work is under the general direction of Dr. Haven Emerson of New York City, ably assisted by Dr. Gertrude E. Sturges of Ohio.

Cleveland has always been a pioneer community, a community with courage, resourcefulness, and vision. A forward looking city guided by the spirit of cooperation and good will, it has made a true appraisal of its genuine needs.

Having accomplished much in the past, it was legitimate to ask: "What is the next step in the control of tuberculosis in Cleveland?"

The willingness of Cleveland to face its problems with patience and courage, its social motive, its spirit of idealism—all give assurance of exceptional achievement in the future.

It remains for an American municipality to demonstrate that tuberculosis can, under intense urban conditions, be controlled.

The Next Step in Cleveland

It is the object of this paper to summarize briefly the results of one particular aspect of this survey, namely, the analysis of tuberculosis conditions in Cleveland. A full report will shortly be published with other material from the Cleveland survey, and can be secured through the Cleveland Hospital Council. It is possible here to give in the most summary fashion only the methods and objects of this survey, together with the principal findings. Possibly a brief indication of the methods of approach may be of some suggestive significance in the development of similar programs in other communities.

The carrying out of this special study in Cleveland has been a most agreeable task for numerous reasons. In the tuberculosis field, Cleveland has been in many respects a pioneer community. Having accomplished much in the past, it was legitimate for the community now to ask: "What is the next step in tuberculosis work in Cleveland?"

In the past, Cleveland, through its health and tuberculosis agencies, has admirably accepted the challenge to make Cleveland the national leader in tuberculosis work. The community has met its obligations in a notably conspicuous way. Its past experience, coupled with a willingness to face its current and future problems with patience and courage, gives assurance of exceptional accomplishments in the future.

In discussing the prospects of future developments in the Cleveland tuberculosis program with the health and civic leaders in the community one is impressed favorably with the attitude quite generally maintained toward pressing local problems. The leaders seem to recognize current limitations in health and tuberculosis work. There is manifested an excellent spirit of cooperation and good will between local agencies. The heads of local movements are forward looking and sympathetic to fresh suggestions.

The primary objects of the tuberculosis survey in Cleveland were as follows: (1) An analysis of "past history" as to tuberculosis, a study of its past incidence as to mortality and morbidity, and an analysis of previous experience as to methods of control. (2) A study of the present problem, its magnitude and its relative significance as a disease factor in the life of the municipality. (3) An analysis of existing measures and equipment for meeting the problem. (4) A determination of the chief immediate needs and outstanding inadequacies in the present machinery for tuberculosis control. (5) An approximation of the more obvious and urgent recommendations growing out of such an appraisal. In endeavoring to accomplish these ends a specific program of inquiry was outlined as a basis for approach to the Cleveland situation. An effort was made to accumulate knowledge with reference to past and present tuberculosis factors in Cleveland, under the following general headings:

I.—Statistics.

(a) Population: General knowledge regarding age and sex distribution, nativity, etc.

(b) General Mortality: General mortality rates for at least the past decade; for residents and non-residents; for leading causes, etc.

(c) Tuberculosis Mortality: (1) Primary to an analysis of tuberculosis mortality is the question of the reliability of death certification; and (2) tuberculosis mortality for a few years back, according to residence, age, sex, forms of tuberculosis, occupation, nativity, community sections, etc.

(d) Tuberculosis Reporting: The amount of tuberculosis reported; the ratio of known, active, and arrested cases to deaths; and an analysis of reported cases according to sections, etc., with ratios of reported cases to deaths by sections. Under this heading should also be considered the methods of case classification.

II.—Legislation.

The extent of legislative backing and the efficacy of legislative enforcement as regards tuberculosis reporting, segregation, clinic and hospital provision, routine medical work in schools and factories, and nursing facilities are included, as well as general sanitary considerations, such as milk control, respiratory hygiene, general cleanliness, housing, and, finally appropriations.

III.—General Sanitation.

Fundamental to an analysis of a tuberculosis situation is at least a general knowledge of sanitary conditions as reflected in general cleanliness, street conditions, housing, milk and food control, the suppression of common utensils, the prevention of spitting, the promotion of personal hygiene, and the medical control of open cases by segregation.

Disease detection should comprise an analysis of facilities and methods for the detection of tuberculosis, including a study of clinics, and of nursing methods. The efficacy of existing general medical machinery for age groups, work among infants, pre-school and school children, and factory workers. The percentage of reported cases in an early or advanced stage was noted as a reflection of the efficiency of disease detecting devices as well as the possible utilization of general medical examination campaign methods or of special consultation services.

V.—Treatment.

Under treatment, in particular, the problem was approached from the quantitative as well as the qualitative point of view. The nursing problem, for instance, was studied from the point of view of the relative utility of generalized compared with specialized nursing methods.

A study was made of specific treatment measures, including home treatment, as to nursing facilities and matters of equipment; clinics and dispensaries; tuberculosis classes; institutional methods, such as camps, open air schools, sanatoriums, hospitals, and preventoriums; relief measures; domestic science and home hygiene instruction; general social and occupation adjustment.

VI.—Subsequent Observation.

Investigation was made into the methods of control of the returned or arrested case, his relief, his working adjustment, his hygienic education, and his medical supervision.

VII.—Prevention—Education.

The effectiveness of the preventive program was measured by the early detection of disease, the control of milk supplies, the segregation of open cases, and general sanitary precautions. Note was made of the use of special educational procedures such as disease suppressive as well as health creative personal hygiene propaganda, home hygiene education, domestic science work, the development of nutrition classes, summer camps for the subnormal children, and preventoriums.

VIII.—Research and Teaching.

Under this heading the utilization of opportunities for laboratory and social research was included, together with the methods of institutional instruction for lay and professional groups.

IX.—General Organization.

Analysis was made of organized work for the detection, control, and prevention of tuberculosis.

(a) Public machinery, its efficacy, the adequacy of appropriations, records, filing system, etc.

(b) Private organization machinery—its business like character, full or part time services, its use of lay and professional backing, its usefulness for preventive education, for the initiation of new services, for the coordination of public and private established services, and for the observation of public services.

Cooperation in Health Survey

On the basis of this program a careful statistical and field study was carried out, aided very materially by the other investigators cooperating in the general Cleveland Health Survey. Particular light was thrown upon the tuberculosis situation by the investigators in the nursing, industrial, and child hygiene fields.

In carrying out the direct phases of the tuberculosis survey special activities were greatly facilitated by the direct cooperation and aid furnished through the local health agencies, particularly the City Department of Health, the Tuberculosis League, the Visiting Nurse Association, the Associated Charities, and similar agencies.

The report in full, when eventually published, will probably be presented from the points of view indicated by the preliminary chapter headings, such as: "Objects and Methods of the Survey," "Special Provisions for Fighting Tuberculosis in Cleveland," "General Measures for the Prevention and Control of Tuberculosis in Cleveland," "Statistical Findings," "General Summary of Activities and Equipment," and "Conclusions and Recommendations."

The outstanding facts in the tuberculosis survey were presented at a recent meeting in the Chamber of Commerce Building at Cleveland, at the annual meeting of the Cleveland Tuberculosis League, before an audience of physicians, nurses, city officials, members of the League, and others. At the time of this meeting a preliminary synopsis of the findings of the survey was prepared for distribution. This summary presented the survey facts as follows:

Equipment for Fighting Tuberculosis

Tuberculosis is in large measure a preventable and curable disease, yet each year between ten and twelve hundred Cleveland citizens die from this cause alone. Nearly six thousand known cases are constantly afflicted with this disease—a social handicap and economic burden to themselves, their families, and the city.

Cleveland has been, in comparison with other American cities, by no means backward in the development of machinery for defense against this "captain of the men of death." Public and private interests have provided: (1) A Bureau of Tuberculosis in the Department of Health—at present without a head. (2) Seven Department of Health tuberculosis clinics in the health centers distributed throughout the city. (3) A staff of eighty or more general public health nurses in the Department of Health, devoting considerable time to finding and treating tuberculous cases. (4) Municipal or private institutions, providing approximately five hundred beds for the care of early and advanced, childhood and adult, pulmonary and non-pulmonary cases of tuberculosis. (5) A Tuberculosis League, responsible for the initiation of many of the excellent anti-tuberculosis provisions in the past, and alive to its present obligations for educational and other activities aimed at the control of this disease. (6) A background of legislative provisions, a system of general sanitary and milk control, organization for infant welfare and school health work, and for relief dispensation,—all important in the war on consumption, and all comparing favorably in theory and practice with the average American city.

Past Accomplishments

With this machinery for tuberculosis control, Cleveland's accomplishments are of no mean order. Their appraisal is of great significance, for if we are to estimate the potential possibilities of a community we must know its "past performances." From this point of view the outlook is immensely encouraging. Among the mileposts of progress in Cleveland's fight on the Great White Plague are:

(1) A courageous pioneer development of a health center system, coupled with generalized nursing which constitutes an experiment and demonstration in social machinery for disease control of immense national value.

(2) A gradual development of tuberculosis clinical attendance of thousands annually, totaling over sixty-one thousand for the period 1914-18.

(3) The registration of 4.7 active tuberculosis cases in 1918 for every annual death, a ratio that compares favorably with the usual American registration of three or four cases to a death.

(4) The establishment of the Warrensville Sanatorium, most noteworthy among Cleveland's institutional provisions for tuberculosis, in many respects a model institution both in equipment and management.

(5) An encouraging reduction, along with most other communities, of the annual tuberculosis death rate, falling from 225 per hundred thousand living, the rate in the period from 1865 to 1869, to 145 per hundred thousand from 1913 to 1917.

Immediate Needs

In spite of these accomplishments much remains to be done if the disease is to be reduced to a minimum—measures that do not await fresh discoveries in disease control, but which depend on the use of known and demonstrated means for tuberculosis elimination. If we measure Cleveland against ideal standards, it is because of our faith in the city's ability to approximate these standards:

(A) Tuberculosis is a communicable, widespread infection, an infection that can be reduced by:

(1) Education in personal hygiene. Very little is being done in this direction at present in Cleveland, either to suppress disease transmission, as through the elimination of common utensils, or to increase general resistance, as through the promotion of more adequate milk consumption by children.

(2) Control of dangerous infectious cases. Cleveland has the legislation necessary for the segregation of such cases, but employs it rarely.

(3) The prevention of dangerous spitting. In 1918 there were no convictions for violation of the anti-spitting ordinance.

(4) The sanitation of milk supplies. Cleveland has a fair milk supply, pasteurization insuring against bovine tuberculous infection. Every effort should be made to uphold and enforce the present milk standards.

(5) Adequate housing conditions. Cleveland faces a serious housing problem, insistently demanding radical treatment if tuberculosis and other diseases are to be controlled.

(B) Tuberculosis is a preventable disease, to be reduced in its active and advanced forms by:

(1) The reduction of economic strain by the elimination as far as may be possible of excessive fatigue, long working hours, and time lost through inadequate transportation facilities; by the provision of opportunities for healthful recreation for working people; by the development of facilities for purchase of food and clothing at minimum cost through company or cooperative stores; by the training of girls in domestic economy and the art of buying and cooking food; and by the development of adequate industrial health services. Employers and employees must come to realize that their common interest in the health of industrial personnel can best be served through the institution of physical examinations under conditions mutually satisfactory.

There has been in Cleveland notable progress in the field of industrial hygiene, yet the amount of tuberculosis which has been found through the examination of employees or applicants for employment in the industries of Cleveland is negligible. It has been overlooked either because examinations have been made too casually or because they have been made by physicians very ill equipped to examine for pulmonary disease.

(2) The detection of early cases. At present 50 per cent of the cases discovered are advanced. This should be reduced to 25 per cent, at least, through the training of clinic and general physicians in the detection of early signs of disease, and through the help of expert advisory consultation services on diagnosis in difficult or doubtful cases. At present Cleveland is registering about four and one-half cases for every annual death, while the probable ratio of active cases to deaths, if all were discovered, is nine to one rather than four and one-half to one.

(3) More adequate provision for institutional treatment. At present 44 per cent of the male patients at Warrensville leave "unimproved." The potential effectiveness of the city's equipment is in great measure wasted unless this percentage is materially reduced through social and educational devices and more effective "follow-up."

(4) Prompt reporting upon diagnosis. At present from 20 to 30 per cent of the cases are not reported until death.

The Recommendations Made

To meet these deficiencies in the Cleveland tuberculosis program, symptomatic as indeed they are of conditions generally elsewhere, certain specific suggestions are presented. If ways can be found for their adoption, it is confidently believed that Cleveland will soon deserve and receive the Nation's universal acclamation as the city that fought tuberculosis to a finish.

(A) Find more cases of early tuberculosis. If tuberculosis is to be combated successfully, cases must be found early. In Cleveland, as elsewhere, the "next step" in tuberculosis is the *first step*, namely to find the early, undiscovered cases.

(1) By educational methods and, where violation is persistent, by legal measures, stimulate compliance with city ordinance requiring the reporting of tuberculosis as soon as diagnosis is established.

(2) By the establishment of an expert medical advisory consultation service on diagnosis and treatment, to operate through the health centers under the auspices of the Department of Health or the Tuberculosis League.

(3) By providing post-graduate medical training, through the medical school or otherwise, for the training of clinic physicians and general practitioners in the detection of incipient signs and symptoms in tuberculosis.

(B) More adequate treatment.

(1) By the provision of 450 additional beds for institutional cases, for advanced and early types, for adults and children, at the City Hospital and Warrensville.

(2) By improved methods of sanatorium and hospital treatment encouraging the patients to persist in the treatment until arrested or cured, and following them up to insure proper social and economic adjustments to work and to life.

(3) By providing a more adequate number of nurses to find suspicious cases and persuade them to come to doctors for diagnosis, 150 more nurses being needed on the staff of Department of Health.

(C) Prevent more infection.

(1) By an intensive educational campaign, through the Tuberculosis League, on the dangers of infection, personal hygiene, food hygiene, and measures to increase resistance.

(2) By improved sanitary practices, involving the suppression of spitting, the segregation of dangerous consumptives, an improvement in methods and equip-

ment for living, including adequate housing to prevent inevitable infection through congestion.

(D) More complete organization.

(1) A full time chief in the Bureau of Tuberculosis, to aid and cooperate with other agencies in the further development of the health centers, the institutional program, the post-graduate training, the consulatation service, and the educational activities.

(2) The adequate financing and staffing of the Tuberculosis League for educational and possibly medical consulting work, involving an estimated annual budget of from twenty to thirty-five thousand dollars, depending upon the service undertaken.

(3) A full fledged medical, nutritional, and educational program in the schools and factories of Cleveland.

Cleveland has always been a pioneer community, a community with courage, resourcefulness, and vision. A forward looking city, guided by the spirit of cooperation and good will, it is seeking a true appraisal of its genuine needs. In the past the city has admirably accepted the challenge to make Cleveland the national leader in health and tuberculosis work. Its obligations have been met in the Cleveland way.

Having accomplished much, it was legitimate to ask: "What is the next step in the control of tuberculosis in Cleveland?"

The willingness of Cleveland to face its problems with patience and courage, its social motive, its spirit of digested idealism, all give assurance of exceptional accomplishment in the future.

It remains for a leading American municipality to demonstrate that tuberculosis can, under intense urban conditions, be controlled. Cleveland possesses the knowledge, the resources, and the spacious minded leadership essential to this task.

VOCATIONAL SCHOOL FOR THE TUBERCULOUS, CHICAGO, ILL.

THERE is nothing new about the theory of special training for the handicapped, or even the therapeutic effects of work properly adapted to the needs of the chronic. It has long been recognized that the mental effect of idleness upon those by disease condemned to a life of uselessness is so depressing as to hasten their death. For years there has been a discussion as to the sorts of activity that could with safety be introduced into tuberculosis sanatoriums. The old treatment prescribing complete rest and fattening foods has not solved the problem of tuberculosis. That it cannot be assumed that every gain in weight means a corresponding gain in resistance to disease is proved positively by the reactivation of tuberculosis in sanatorium patients discharged as cured, and by the fact that they also show a lack of resistance to other contagions.

Herman Brehmer introduced graduated exercises in his treatment of tuberculosis some sixty years ago. Dr. Patterson, of Frimley, England, found that exercise stimulates the production of antibodies and that the induced deep breathing gives tone to muscle and blood vessels. Dr. Edward McSweeney of the New York State Department of Health went a step further and introduced in the treatment of his patients properly selected work from fifty occupations. Most of the sanatoriums of the country have departed from the program of absolute rest.

The advantages of the work régime have been notably demonstrated by the Chicago Municipal Sanitarium. The vocational school for the tuberculous, conducted at this institution, is the subject of a report by Dr. John D. Robertson in the *Bulletin* for January, 1920. Graduated labor was introduced in their treatment in 1917, when twenty-five patients under close supervision were given the care of their cottages. It was soon evident that the feeling of cheer their useful activity induced materially aided in their cure. To carefully supervised useful work was soon added the idea of utilizing the period of enforced rest for vocational training, by which means the patient may return to the industrial world better equipped than when he left it, or may be prepared to earn a livelihood in a new occupation not hazardous to his health. The training has become increasingly popular with the pa-

The horticultural class receiving instruction in evergreen tree culture.

The manufacture of the sanatorium drug supply affords training in pharmacy.

tients and has furnished an added incentive to them to get well.

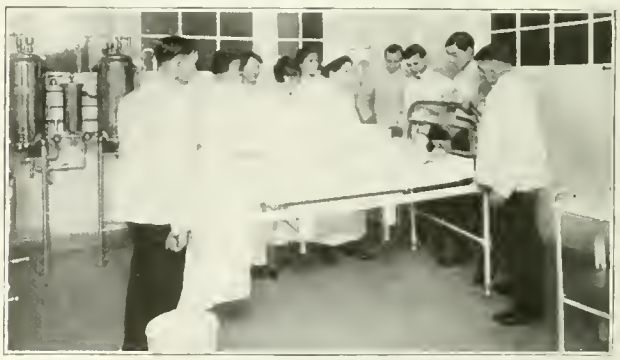
Each prospective student is advised as to what course he can most advantageously take up. A course in English is recommended to every patient, especially to the foreign-born patients. It really seems a waste of opportunity to allow any foreign-born person to be present in any institution belonging to the city or Government without teaching them something of the English language, and it seems as if it would be desirable to require every such patient who has passed the febrile condition of disease to spend at least an hour daily in the study of the English language supplemented by the study of civics.

The class work in manual training includes designing, cabinet making and repairing.

Dietetics and cookery are taught both by lectures and demonstrations.

The school even provides for the man of exceptional ability. To him is offered the choice of studying pharmacy, x-ray work, or photography, electricity, or routine laboratory work. A course covering six months of study, lectures, demonstrations, and active experience provides an undergraduate nurse course, its object being not only to prepare for professional nursing but to inculcate the principles of cleanliness and first-aid in the home and community. A course in domestic training covers all of the essentials of hospital and home food preparation for both the sick and the well. The Department of Agriculture and Horticulture prepares for a decidely healthful employment. Practical demonstrations are given and they are directed in the use of current garden and farm papers regarding various phases of the work. There are courses in telegraphy, woodworking, and shoe repairing.

The class in poultry raising takes care of more than two thousand chickens for the sanatorium.



Lectures and practical work provide a thorough and useful course in general nursing.

Two courses have contributed greatly to the morale of the patients—the course in barbering and the one in beauty culture. Any patient desiring this service receives it at the school free, and attendants say that there is nothing that will so put heart into a bedfast patient as this service carried into the wards by advanced students.

Recreation is also provided for, and the Hall for Health Education provides many lectures on ethical subjects, with music and private theatricals.

Those too young to take up the study of a trade receive the regular school subjects, toy making, and rug making. It is planned to carry these subjects into the wards for the benefit of the bedfast patients. The object of the school is therapeutic, but the economic gain adds rather than detracts from its curative purpose.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M OLMSTED, R. N., *Editor*

MISS NOYES HONORED

AT a recent meeting of the three national nursing organizations held in April in Atlanta, Ga., Miss Clara D. Noyes was re-elected president of the American Nurses' Association. Miss Noyes was for three years president of the National League for Nursing Education, and now enters her third year as president of the American Nurses' Association.

All nurses feel that this is just as it should be, as Miss Noyes has proved herself a leader among the executives in the nursing profession, and by reason of her keen mind and her exceptionally capable, impressive personality she has won the confidence and support of the American nurses throughout the entire country.

Miss Noyes has had long and varied experience in executive positions. A graduate of Johns Hopkins, she has been superintendent of St. Luke's, New Bedford, and Bellevue, New York. After the death of Miss Jane Delano she was appointed director of the department of nursing of the American Red Cross.

Miss Noyes was recently decorated with the Patriotic Service Medal of the American Social Science Association and of the Council of National Institute of Social Science.

We are sure the nurses of this country are strongly backing Miss Noyes in all the efforts she is so steadily promoting for the advancement of the nursing profession at a time fraught with many difficulties and perplexities.

Miss Clara D. Noyes (re-elected), President of the American Nurses Association.

THE SHORTAGE OF NURSES

THERE are so much discussion at the present time of the question of the shortage of nurses and so much criticism of nursing education in general that a few facts may be of interest to the readers of MODERN MEDICINE.

It is true the demand for nurses far exceeds the supply. The public has twice recently suffered real tragedy in epidemics because of lack of nurses. The advance in the prevention of disease, and of public health work in schools, factories, cities, and on the prairies is being hampered and threatened by a shortage of those workers who carry to the people the message of right living and good health.

There is no need to state here that the woman with a nurse's training, skilled in the relief of suffering and the bedside care of the sick, is the messenger best able to reach the individual ear and make effective a teaching too easily ignored. As Florence Nightingale once said, "The word that sticks is the word that follows work."

Everywhere the complaint is heard that schools for nurses are short from 10 to 50 per cent of their usual quota of student nurses. What is wrong with our schools for nurses that they have not called out from the ranks of young American womanhood sufficient numbers to meet the demands of the present day? Never have there been opportunities for bigger, finer services open to nurses than there are today. This has been brought about by the recent almost unbelievable growth of public health nursing.

There is room at the top of every ladder which women have tried to climb; the lower rungs of some are so overcrowded that many aspirants are pushed off and lost in the jam, but here is a ladder not yet overcrowded, the top rung of which has never been reached. There is no "Keep off" sign posted in masculine handwriting, and no one denies women full access. The ladder's demands, from the bottom rung up, exceeds the supply.

Some reasons for this situation are more marked than others. Among those most frequently accepted are:

(1) There are hundreds of occupations open to women today where twenty-five years ago there were but two. Many of these in less laborious fields offer almost as good remuneration, an eight hour day, and little training.

(2) The exploitation of student nurses and the practice, too often found of using nurses' schools to make money for the institution, has tended to keep the able and intelligent women from entering the profession.

(3) Nursing education has not yet been placed on a par with women's education in other fields. The average training school offers nothing much of educational interest to the young women who have gone through college and to whom an extra two years at a university would give

far more pleasure and an equal earning capacity.

(4) Three years spent in doing hard work, called "training," for which they get their board and at times a few dollars. In too many hospital schools there is very poor training, or none at all, in any of the special fields opening to nurses, such as public health work, laboratory, or secretarial work, executive, and teaching positions, in hospitals, schools, and medical social service. Changes and reforms are undoubtedly needed in the nursing profession, as well as in the medical, educational, and other professions.

The demand for more nurses and more adequate nursing education is being voiced from many groups and has been tremendously intensified since the shortage has been felt in hospitals. There seem to be two groups of critics interested in the present situation. One group, mostly medical men, are declaring that nurses are over-trained; the other group, medical men, sociologists, public health experts, and leaders, are even more insistent that nurses are not highly enough trained to provide the necessary leaders for the great program of health education.

It is quite time the public took an interest in nursing problems and gave help in filling the schools that are giving a good training, because it is not primarily in the interest of the nurses or the hospitals that the knowledge of nurses training schools should be stimulated, but rather it is in the interest of the public; for nursing has become a public concern. The sick public, whether rich or poor, needs nursing service. The well public, whether rich or poor, needs health instruction by nurses. Nurses must be taught before they can teach.

The notion died long ago that education is something every individual should pay for, because it is to his own advantage to be educated. A state school system is a proper charge on public funds. The system recently inaugurated in Kansas City described in another article in this department is a step in the right direction. If a program of intensive training could be put through, and nursing as a profession be put on a proper educational basis in all colleges and universities, there is no reason why the nurses should not pay the usual fees for the instruction that would give an opportunity for nurses to fit themselves thoroughly for every department of work. Certain hospitals could be used as laboratories and proper instructors be provided.

The morale of the nurses will rise to still higher standards as they are treated by hospitals in accordance with established precedent in colleges. Under the present system we trust them with the lives of patients and yet we treat them as if they could not be trusted; we graduate them at the end of three years, although their fitness to continue unsupervised at the end of this period is not demonstrated by any tests of standard.

Young women are everywhere turning away from schools for nurses to colleges because of the better education offered there. The shortage of nurses is not due to the length of the course of training, although many statements are made to that effect.

Women's schools and colleges requiring four years of high school and four years of college to secure diploma are today, as never before, turning away young women because of lack of accommodations, and it is a known fact that our best schools for nurses requiring four years of high school preparatory for entrance and giving a full three years of training are suffering far less from a shortage of students than the schools which have shortened their courses and have lowered their educational requirements.

Nursing is not a call to the ignorant. Its call is to the intelligent, well educated young woman. The work she must do demands brains and scientific knowledge which can only reach their highest development through education. Readjustment and changes in nursing education must come, it is true, but they will be changes which will put nursing education on a par with women's education in other fields. We must raise, not lower the standards to give efficient care to the sick, both rich and poor, in institutions and in homes. EDITOR.

CHILD WELFARE AND THE RED CROSS

Child life everywhere is the immediate concern of the League of Red Cross Societies as expressed in the program outlined at their first meeting at Geneva, held in March. The wide representation of all agencies has given definite form to Child Welfare Work which should become immediately effective everywhere when once it begins to be applied.

An interview reported in the *New York Times* quotes Henry P. Davison, chairman of the Board of Governors of the League as saying:

"The program of the medical conference held at Cannes has become the common possession of the Red Cross societies of some twenty-seven countries. The congress has agreed upon campaign for child welfare which will profoundly affect the health and care of mothers throughout the world. I assume this plan for child welfare will become immediately effective everywhere when once it begins to be applied.

"I feel the same confidence in the effect throughout many countries of the programs we have adopted against tuberculosis, malaria and other diseases. The League of Red Cross Societies will also bring into definite form, and communicate to its organizations, which will bring them into effect, many plans for public welfare which will work of their own force. The impulse thus created will be felt in distant lands.

"One thing which has been grasped and which, I am sure, will have practical results is public health nursing in connection with industrial problems, school life, tuberculosis, maternity and social service. This calling will bring out in women taking it up the finest qualities of enthusiasm, intelligence, devotion and forcefulness.

"The recommended financial policy is for each national society to endeavor to bear its administrative and permanent expenses from membership fees and other regularly assured income.

"Other recommendations cover the employment of properly qualified persons to conduct health service programs and the training of lay workers. The medical program as prepared by Dr. Richard P. Strong, director general of the Medical Department of this league and adopted by the congress, covers recommended practice with respect to treatment of tuberculosis and other infectious diseases, improvement of public sanitation and an earnest endeavor to educate the public along practical health lines.

"Delegates to the congress enthusiastically responded to the appeal of A. J. Balfour, president of the Council of the League of Nations, to call upon the people of the world, through their respective Red Cross societies, to supply doctors, nurses and other personnel, as well as foodstuffs and other materials, for the relief of suffering and destitute people throughout stricken areas, when assured that Governments will provide elemental essentials. This call for voluntary service is of such magnitude that only the Red Cross societies of the world, coordinated through the league, could hope to respond to it in anything like an adequate degree."

To the end of creating an international health agency to carry out relief measures the general medical office of the league has been divided into thirteen departments, each with a separate function. Colonel R. P. Strong, United States Army, has been placed in charge of this office.

NEED OF PROTECTING THE HEALTH OF WORKING CHILDREN

By HAROLD H. MITCHELL, M.D., Special Agent, Health, National Child Labor Committee.

We must recognize the need for protecting the health of the working child as we now recognize the health problem of the school child. It is estimated that at least three quarters of a million children in the United States 14 to 15 years of age leave school each year to engage in wage earning pursuits. These children have almost no opportunity to train themselves for other than manual labor. They are wholly dependent upon their health and muscle to make a living. Neither they nor their parents

A tenement home where the whole family, even the little girls, are engaged in cutting embroidery.

have any appreciation of hygiene or how to maintain their health.

The medical profession generally recognizes that children are more prone than adults to the dangers of exposure to poisons which occur in various industries, that children are peculiarly susceptible to a latent tuberculosis, and that they are, as well, prone to the effects of overfatigue and any general physical strain. The very resiliency of youth may increase the health hazard until the danger line is passed and the young worker has lost his most valuable possession—the ability to work and to earn a living. In short, the working child constitutes a singular public health problem.

We must not yet regard child labor as a health problem that will soon be cared for by legislative prohibition. We have pushed legislation until many of the grosser evils are removed, but even if we should raise our minimum age to sixteen years, we should still have a health program of immature wage earners.

Public health standards and methods are now going farther than the sanitation-bacteriology principles of preventing disease. We are now calling on the hygienist and physiologist.

The child labor health problem involves medical examinations for eliminating the physically unfit and for correcting physical defects. Sixteen states now require the examination of a physician for the issuance of a work permit, but a number of these do not really protect the child, as he may go to any doctor who will state that he is in good health. These examinations should result in the removal of all correctable physical handicaps and such subsequent examinations should be required as are necessary to protect the child from the hazards of his employment. If the child is being injured by his occupation,

Two boys, ten and twelve years of age, are shown gathering rye. These children should be in school. Child Labor Day is an appropriate occasion for giving attention to the problem of conserving the health of the young wage-earner.

the examiner should have the authority to revoke the permit or require the child to change his occupation and to see that the child is followed with the necessary health supervision through a public health nurse, clinic, or private medical attention.

The child's mind is virgin soil for health for health instruction of every sort. In childhood one does not en-

Medical inspection and testing eyes of children. The child labor health problem involves medical examinations for eliminating the physically unfit and for correcting physical defects. Working children must be trained to protect their own energy and health.

counter opposition from prejudice and fixed habits. No child should be permitted to continue in any form of work which prevents his normal growth and development as determined by accepted standards; neither should he be permitted to grow up without learning the fundamental principles of right living. Earlier and more intensive application of the principles of preventive medicine is called for among the children. Health work, therefore, becomes bound up with the problems of general education. Instruct the child properly in health matters and we need have no anxiety about the adults of the next generation.

THE HOSPITAL AS A HEALTH CENTER

By MABEL MONTGOMERY BOORUM, Director, Social Service Department, Mount Sinai Hospital, New York City

TO make the hospital the health center of the community seems a logical proceeding, for the hospital holds the key to the health situation in any community.

One of the first duties of a social worker connected with a community center or settlement who wishes to do constructive work is to see to the health of the people with whom she comes in contact. To improve living conditions and correct physical defects as well as to see that the people are cared for in case of illness—to do this, the social worker refers cases hither and yon to hospitals and dispensaries, wherever the patient will receive the proper treatment and advice.

Use Established Agencies

Many of the progressive social organizations, originally established with a view to non-medical work, have set up independent clinics. This seems a waste of energy and funds and shows a lack of appreciation of the facilities at hand. The hospital and hospital dispensary are there in their midst, established and fully equipped for skillful treatment of disease and capable, under proper guidance, of doing their part in the larger and broader field of prevention. This is, of course, the old argument that the patient does not receive the proper consideration, advice, or treatment in the average dispensary. While this may be true in many instances, if all interests were centered in the hospital, duplication of service under the old method would be obviated and the hospital and hospital dispensary would be raised to the plane of an educational health center.

A survey of the organizations in the district of each large hospital should be made. The function and scope of each should be understood by the various workers in the field. The Visiting Nurse Association, relief agencies, neighborhood houses, and settlements should be encouraged to look upon the hospital and hospital dispensary as a place to which to turn when health problems arise. This would mean many reforms and a much broader conception of what true cooperation means. We have plenty of competition; let us have more cooperation. A plan of organization, closely following the principles laid down by Dr. Michael Davis and Dr. Andrew H. Warner in their valuable book, "Dispensaries—Their Management and Development," might be worked out. We have compulsory education laws; let us hope in the near future we will also have compulsory health laws, with all hospitals and dispensaries raised to such a high standard that the hospital will automatically take its proper place in the community as a health and educational center.

The largest and best equipped hospitals have achieved much in advanced medicine, but it may be well to note that the more scientific the practice of medicine becomes, the more it tends to become impersonal. This utterly impersonal treatment leaves a fatal imprint on the mind of the young intern who is being trained for private practice, and hospitals must guard against this tendency to become machine-like. Group medicine must not be developed to the exclusion of the old fashioned individual or family practice which, whatever its faults, had the merit of keeping the patient as an individual in the foreground. This point of view tends to become lost as the study of medicine reaches a state of complexity which necessitates the cooperation of a whole corps of specialists but whose skill is invaluable as a supplement to, not a substitute for, the sympathetic personal viewpoint of the old fashioned family doctor.

Hospitals to Conserve Health

We have come to the point when we can say that the function of the hospital is no longer exclusively to care for the sick, but to conserve health. In June, 1919, a health class for well children between the ages of two and six was established in Mount Sinai Hospital, with Dr. Ira Wile in charge of the class. We have prenatal clinics, infant welfare stations, and the school nurse to safeguard the health of the child; but very little thought has been given to the child of pre-school age. It was to bridge over this dangerous period of childhood that the health class was organized, in the hope that by careful supervision the children who attend this class will enter school reasonably free from physical defects. The class at present has a registry of 209 children. On an average, forty children and twenty mothers attend the weekly conference. The children are undressed, weighed, measured, and given a thorough mental and physical examination when they first enter. If a child is suffering from physical defects, he is referred to the proper clinic for treatment and, as a reward for being well, is allowed to return to the health class when defects are corrected. The homes are visited by the social worker, who sees that the doctor's instructions are carried out. These visits are of the utmost value, as the social worker keeps in touch with the child and its home life and advises the mother in the proper preparation of food and as to the laws of hygiene. It is difficult to get a busy mother to bring her child to the clinic unless he is really ill. The attendance of our health class proves beyond a doubt that it is possible to interest the parent if she is made to understand the importance of keeping the child well, not waiting until medical treatment is required. The following report on one hundred children, for the first four months of the health class, may be of interest:

Classes held	15
Total attendance: mothers 107, children 359	466
Total home visits made	382
Total visits made to other clinics for cooperative work	167
Total gain in weight of 100 children	241¾ lbs.

Mount Sinai Hospital is most fortunate in having a fund specially donated for preventive medicine, and when our new buildings are completed we are to have a large auditorium for mothers' meetings, demonstrations, and health conferences. The health class for children is the nucleus of a real health center.

When considering the hospital as a health and social center, the first thought that flashes through one's mind is: Are the interns and student nurses being trained to take their place in the community, to preach the gospel of health as well as to minister to the sick? The question is debatable.

There is a crying need for the full use of social service and out-patient departments, by the nursing department of hospital, for the following very excellent reasons: (1) Because the social spirit should not be confined to the social worker; (2) because a nurse is not truly a nurse

until the social spirit is fully developed; (3) because in the social service and out-patient department the student nurse is brought in close contact with the patient before he or she is actually ill, and while illness can be prevented; and (4) because the contact with the individual who is the victim of poverty, bad environment, poor housing, or social conditions presents quite a different aspect from the man or woman in the hospital ward with a very definite illness to combat.

There is a natural tendency on the part of nurses and physicians to think of bed one as a typhoid case, bed two as a pneumonia case, bed three as a case of anemia, and bed four as a neurological case. The disease is the problem in mind, not the individual or the underlying cause of the illness. It is doubtful if a student nurse who has not had experience in either social service or the out-patient department ever gives a thought to the kind of home the patient comes from or to what conditions he returns when convalescent. If a student nurse were given the opportunity to visualize the background of the average ward patient's life her whole viewpoint would be changed and, instead of merely thinking there is no reason for the woman in bed to be nervous, morose, and to show so little inclination to recover, she would set about to discover the cause of the patient's listlessness and lack of interest in life.

The average student nurse comes to the hospital with but a vague idea of what nursing really means. She has visions of holding patients' hands, smoothing fevered brows, arranging flowers, preparing dainties, and making the patient happy and comfortable. The idea of giving personal service is there, with all the disagreeable side of nursing and the drudgery left out. This missionary spirit is allowed to atrophy by constant demands upon the nurses' time, pressure of work and grinding hospital routine. A remedy for this state of affairs should speedily be found. Many of the large hospitals are now considering the eight hour day. This will no doubt help tremendously in the average nurse's attitude toward the patient. Young women who are fatigued by the strain of long hours and work cannot be expected to give much thought to anything but the routine work. I am glad to say that Miss Elizabeth Greener, superintendent of Mount Sinai Training School for Nurses, has succeeded in establishing the eight hour day. This system has been in working order since last October and has been most successful. The nurses work better and have improved physically.

It is most important that the nurse's social spirit should be stimulated from the very beginning of her training, (1) by direct social teaching, and (2) by actual contact with the problems that play such a ghastly part in filling the hospital wards.

It is impossible to estimate the value of social training for student nurses and these young graduates, enabling them to go out in the world with a full understanding of life and its many perplexing problems, as powerful factors in educating the public in its attitude towards vice, poverty, and distress. In the past few years there has been a general awakening to the important part that health plays in the welfare of the individual and the community. Many large hospitals are considering the advisability of allowing the student nurse an opportunity to learn something of the lives of her patients outside of hospital wards.

Scope of Training Broadened

There is no doubt but that in the past the student nurse has been trained in courses that were invariably of value to the hospital and in many instances exploited to a degree, but the old system of training is surely going and training schools must offer a broader course if young women are to be induced to take up nursing as a profession. Training schools all over the country are facing a shortage of student nurses. This is due in a measure to the change of conditions brought about by the war. Women are entering many fields of labor that seem to hold a brighter future, shorter hours, and greater remuneration. To meet the change training schools must be prepared to give a wider opportunity to the student nurse.

Three years ago the Mount Sinai Hospital authorities recognized the value of allowing the student nurse the privilege of training along social service lines. As no definite plan was determined upon, an experiment was tried. Since January 1, 1918, a group of four senior nurses has been assigned to the Social Service Department for three months' training. Each pupil nurse is sent to the different departments in turn and is trained under the supervision of the worker in charge of the department. Short, comprehensive talks on public health and case work are given by the head worker. The pupils also attend the regular weekly committee meetings, when cases are discussed and plans for relief are worked out. Each group is taken to the following places of interest: The Children's Clearing House, Randalls Island School for Mental Defectives, Society for the Prevention of Cruelty to Children, and the Children's Court. Through the cooperation of Dr. S. Josephine Baker, director of the Bureau of Child Hygiene, Department of Health, a day is spent in the public schools with the school nurse, also a day with the nurse in charge of the Infant Welfare Station. A course of six lectures is given each year by men and women well known in the field of social service.

The training of these students requires considerable time and effort on the part of the worker, and just when they become valuable they are sent back to regular hospital duty. We look forward to the time when the pupils sent to us for training are assigned for a period of not less than six months, which length of time is necessary in order that they may not only understand the technic of the work, but develop a proper social vision.

The experiment, on the whole, has been successful. The students grasp the spirit of the work and all have expressed a desire to continue in this field after graduation. At present we have on our regular staff three of the recent graduates who took the social service course. The supervision of the pupil nurses has been as careful and thorough as the pressure of work allowed; however, we look forward to the day when the pupil nurse remains with us for a longer period and when we will be able to have on our staff a worker who devotes all her time to teaching and supervision. Or, if a plan can be worked out to relieve for a period of eight months the student nurses who elect to take up social service work, we hope it may be possible in the future to send them to Columbia College for training. The Hospital Social Service Association of New York, recognizing the fact that the hospital social worker needs training and needs it badly, conferred with Miss Nutting of the Department of Nursing and Health, Teachers College, and a very definite course was worked out. Graduate nurses and student nurses from recognized training schools are eligible to take this course in public health and social service work. Miss Florence Johnson, a member of the Teachers College staff, at present director of the Atlantic Division of the Red Cross, is in charge of the field work. We feel that this course at Columbia opens up a very wide field and that a new era for social service is at hand.

HOW KANSAS CITY EDUCATES NURSES

By HELEN FARNSWORTH, Instructor, Junior College for Nursing Education, Kansas City, Mo.

IN the summer of 1918 the nurse instructors of the Department of Nursing and Health of Teachers College, Columbia University, Misses Isabel Stewart and Pamelia Doty, talked to their summer session students of the necessity of higher education for the nurse and the advisability of training schools for nurses affiliating with universities and colleges. A student from Kansas City, realizing such a need was acute in her locality, drew all the assistance possible from the instructors at Teachers College and returned home, intent upon adapting this theory to Kansas City's possibilities.

Public Schools Meet Public Need

An interview with the superintendent of public schools, Mr. I. I. Commack, disclosed his interest in nurses' education, but the details he turned over to the principal of Kansas City's one center of higher education, the Junior College. The principal, Mr. E. M. Bainter, had just returned from government service in Porto Rico, where he was in charge of the school system, and was keen for advancement. Immediately the appeal was made to him to throw open the doors of the College to nurses, he evinced an interest and understanding that surmounted every problem. He assured the Kansas City League of Nursing Education, which sponsored the plan, that he would help in every way possible. In the few months that followed the plans were formulated, the Board of Education appealed to and, thanks to Mr. Bainter's tact, discernment, and wisdom, the members of the Board grasped the idea that the education of nurses was just as much within the responsibility and jurisdiction of the public school system as was the education of the school teacher, the lawyer, physician, or business woman.

The plan was to have the preliminary course, as authorized in the standard curriculum for nurses, taught in a twenty weeks' course of two hundred eighty hours' work in the College,—two courses each year to correspond with the semesters of the school year. The College instructors were to teach anatomy and physiology, sixty hours; bacteriology, twenty hours; chemistry, twenty hours; and cooking and nutrition, forty hours; all of which included laboratory work with excellent facilities. Four nurse instructors from various hospitals consented to teach the additional subjects: hygiene, twenty hours; drugs and solutions, twenty hours; ethics and history of nursing, twenty hours; and practical nursing, sixty hours. The Board of Education, through Mr. Bainter, arranged that the nurse instructors should receive the pay per hour allowed other teachers of special subjects. The hospitals sending students paid a nominal laboratory fee of three dollars per student for all laboratory fees, and paid a small amount to supplement the sum paid the instructor in practical nursing, who gave considerable extra time. The hospitals were also requisitioned for beds, bedding, utensils, Chase dolls, and other equipment for a demonstration room which was fitted up in a large class room at the College.

Accredited Schools Matriculate

The League of Nursing Education established the standard for admission to the course. Any accredited training school could send students, provided their educational requirements and age were reached. Each hospital had to agree to room and board its own students, arrange for car fare, and give only four hours on duty to the students, as probationers. Hours on duty to be seven to eleven A. M.; in college, one to four P. M., and the rest of the time to students for study. An educational committee from the League inspects the credentials of each student before admission and keeps supervision of the teaching, calling the superintendents of each training school together from time to time for consultation.

In the practical nursing the instructor, Miss Anna Belle Murphy of the Christian Church Hospital, held weekly conferences at the College the first semester, attended by the practical instructors or, in lieu of one, the superintendent of nurses of each hospital. At this conference methods of procedure were discussed; systems compared; and a common plan acceded to by all. Miss Murphy then demonstrated each procedure before the Conference, in order that each training school representative could go back and supervise practice periods of her pupils. Instruction cards were then made out by Miss Murphy and supplied to each student and each training school. In this way a great step towards standardized equipment and procedures was taken.

The course opened in September, 1919, with thirty-eight students enrolled from five hospitals; namely, Christian Church Hospital, Mercy Children's Hospital, St. Luke's Hospital, Swedish Hospital, and Wesley Hospital. Two other training schools applied too late for the first course. Thirty students completed the course, and late in January, 1920, received the credits that enabled them to enter upon the Junior work in their respective training schools. The second class to be admitted was enrolled immediately, with twenty-one students representing, in addition to the above named hospitals, the Bethany Hospital of Kansas City, Kan., and the Research Hospital. All these students remained to complete the course and receive their credits.

Pioneer Work in Public Education

In many ways the course can be strengthened for the coming year of 1920-21; but all agree the work is of great value. To the hospital it is a relief from an educational burden superimposed upon their primary duty of care for the sick. The students have profited by the College contact and atmosphere, and a breadth of view was attained from so many well prepared instructors; and they have also the realization that they in truth received a higher and special education, which placed them at once in an enviable position among the other students in nursing schools. Not the least of the advantage is to the College itself. To Mr. Bainter and his corps of instructors has come the satisfaction of doing a pioneer work in a field so necessary and of such practical application as that of the nurse; while the enthusiastic support of the Kansas City League of Nursing Education, with its program of publicity, is calling for newer buildings, added equipment, and more instructors to enable this splendid educational center to reach wider fields of usefulness in Kansas City and its vicinity. This program includes a Central School for Nurses to take over not only the present preliminary course, but the later and special theory necessary for the complete education of the nurse.

KANSAS CITY MEETS NURSE PROBLEM

The Kansas City Junior College for the nurses' preliminary course is a pioneer among municipal public schools in offering necessary theoretical sciences to nurses in training in hospitals. The courses designed for them under the regular school instructors include the fundamentals of drugs and solutions, the history of nursing, physiology, chemistry, bacteriology, anatomy, cooking, and hlgiene. This method of training will attract to the profession young women not otherwise to be interested.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

THE VENEREAL DISEASE CAMPAIGN IN NORTH CAROLINA

NORTH CAROLINA is considered to have one of the most thoroughly organized health departments, and its activities along the line of venereal disease control have been of equally high standard. A recent issue of the *Health Bulletin* published by the State Board of Health contains an excellent description of the venereal disease menace and the methods pursued by the Bureau of Venereal Disease in combating this menace.

An interesting reference showing the effect of the venereal disease problem in its relation to child life and reproduction is contained in an article by Dr. Millard Knowlton, chief of the Bureau of Venereal Disease.[1]

In a study of syphilis in relation to infant mortality Dr. P. C. Jeans of St. Louis concluded that from 10 to 20 per cent of adult males and 10 per cent of married women are syphilitic; that 75 per cent of the offspring of syphilitic families are syphilitic; that 30 per cent of pregnancies in syphilitic families result in death before term, as against the normal rate of 10 per cent; that 30 per cent of living children in syphilitic families die in infancy; that 25 to 30 per cent of syphilitic infants die of syphilis; that but 17 per cent of all pregnancies in syphilitic families result in healthy children who survive infancy; and that about 5 per cent of all infants are syphilitic.

In North Carolina as many as one thousand cases of venereal disease are reported monthly by physicians to the Bureau of Venereal Disease, while druggists have reported as many as two thousand sales of venereal disease remedies per month. A very significant fact is that about one-half the cases of infection are innocently acquired, and nearly all the innocent victims are women and children. "Surely no one," says Dr. Knowlton, "would wish to have innocent women and children suffer unnecessarily for the conduct of the husband and father; yet this is exactly what has happened as a result of our past attitude toward venereal disease. The modern view that such disease is incidental to sex irregularity, rather than a punishment therefor, has resulted in an entirely different attitude towards infected persons."

The three main lines of activity in the campaign to combat venereal disease are medical measures, including the treatment of infected persons to render them noninfectious, resorting to quarantine when necessary; repressive measures against prostitution, which is considered a great source of venereal disease; and the educational measures for the purpose of disseminating accurate information concerning venereal diseases and arousing the public to adopt vigorous methods for their prevention.

JULES SCHEVITZ.

1. *Health Bulletin*, North Carolina State Board of Health, February, 1920.

COORDINATION OF CHILD HEALTH ACTIVITIES

ORGANIZATIONS doing health work among children are more and more coming to appreciate the pressing need of correlating their activities. Not only is there much duplication and, therefore, much waste of effort; but it is felt that many opportunities for developing well rounded programs for the health of children are thus lost.

The American Child Hygiene Association, American Red Cross, Child Health Organization of America, National Child Labor Committee, and the National Organization for Public Health Nursing have held several conferences with a view as to how such correlation may best be effected.

As a result, the representatives of these organizations have formed a Council for Coordinating Child Health Activities, to which will be added gradually other national organizations carrying on well defined programs for the health of children. The main objects of the Council are: (1) To define and develop so clearly their own work that each organization will be working in harmony and cooperation with all the others; (2) to develop new methods which will lead to meeting more effectively some of the special problems still unsolved; and (3) to afford an opportunity for any organization dealing with the health of children to submit its plan and program for suggestions.

This action, which bids fair to be a long step in the coordination of child welfare activities, is to be highly commended. The widespread interest in child welfare, and especially in child health measures, has brought into being scores of organizations, local, state, and national, which have been working with earnestness and zeal for the benefit of the child. Many of these efforts have been handicapped for lack of funds and by their failure to coordinate their work with other activities. There is much work to be done and no organization need fear that opportunities will not be at hand. Beginnings only have been made in the movement for effective child welfare work. Many untouched fields and many half developed fields of physical, mental and moral care of children remain untilled. It may be confidently expected that with coordination and cooperation the boundaries of child care may be extended.

S. P. M.

ILLEGITIMACY AS A CHILD WELFARE PROBLEM—A REVIEW*

By HUGO EHRENFEST, M.D., St. Louis, Mo.

THE report of the Children's Bureau under their Publication No. 66, presents a survey of available statistics and literature relating to the prevalence of births out of wedlock both in foreign countries and the United States, discusses the status of the illegitimate child and records the various measures of protection and guardianship by which public and private agencies have attempted to mitigate the obvious handicaps of the illegitimate child. In an appendix a complete bibliographical list of the source material for this report and of general references is given.

Problem in European Countries

Differences in laws and customs, and in methods of securing and compiling vital statistics in various communities and countries, render a comparative study of the statistics of illegitimate births very difficult. Two methods of computing illegitimate rates are used in this report: the first gives the proportion of illegitimate births to total births in a given period; the second compares the number of illegitimate births with the number of single, widowed and divorced women of childbearing age in the respective community. The first method emphasizes the extent of the child-care problems involved; the second gives data relating more definitely to causative factors and to the moral and preventative side of this problem.

European birth statistics, because of their importance in connection with obligatory military service, are very complete and reliable. A comparison between the legitimate live births for every one thousand married women between the ages of fifteen and forty-nine years and the illegitimate births for an equal number of single, widowed, and divorced women of the same age shows wide variations in the various countries, and even in political divisions of the same country. The number of legitimate children per thousand married women ranges for Europe between 114 and 250, of illegitimate children between 4 and 38 for one thousand unmarried mothers. Racial differences, economic and social conditions, marriage customs, laws, constructive social influences, and various legal provisions in regard to the status of the illegitimate child account for the variation. During the past thirty to forty years only in France and Sweden the illegitimate birth rate has fluctuated or increased; in Ireland it has remained stationary; in all other European countries it has decreased.

Recent English statistics prove that a decline in the total birth rate is likely to result in a rise of the percentage of illegitimate births, though in fact the number of the latter group actually may not have increased.

In large centers of population social problems are more intensified. Greater opportunity for better maternity care causes the illegitimate cases to gravitate to the larger cities. The result is clearly shown in a comparison of the percentages of illegitimacy in large cities with those of the entire population. Thus Stockholm records a percentage of 33.5 of illegitimacy, Vienna 30.1, Paris 25.5, Berlin 18.1, Rome 16.5; while the annual average of illegitimacy for the German Empire is 8.7, for France 8.9, for Austria 12.3, while in England the total average of 4 per cent indeed is higher than the percentage of illegitimacy in London at 3.5.

Conditions in the United States

The inadequacy of birth statistics in the United States is evidenced by the fact that for only sixteen states, and for only twenty of the sixty-two cities with a population of more than 100,000, figures on illegitimate births could be obtained.

On the other hand, it is necessary to treat the figures for the negro population separately, since illegitimacy among negroes must be studied by itself in its relation to the social and economic conditions surrounding the race at the present time and in their past history. However, it is most noteworthy, that, quite different from the white population, among the negroes a child born out of wedlock, as a rule, has very much the same advantages and disadvantages as a child born in lawful marriage. There were not enough data available to study adequately the problem of illegitimacy among the negroes.

The average legitimate birth rate per thousand married white women was found to be 180.7, the average illegitimate birth rate for one thousand unmarried white women 4.3, with not very wide variations in these figures in the different states.

An analysis of the relation between illegitimacy rate and the percentage of unmarried women among all women of child bearing age revealed

*A digest and analysis of the report by Emma O. Lundberg and Katharine F. Lenroot, United States Department of Labor, Children's Bureau Report, Publication No. 66, Washington, D. C.

considerable differences. Thus in Vermont, where the illegitimate birth rate was relatively high, only 40.2 per cent of the women of child bearing age were unmarried. The percentage of illegitimacy among the total births of the states studied was 1.8, being a little higher than this average in the 5 New England states. Excluding the negroes the illegitimate percentage in the larger cities ranges between 6.1 (Kansas City) and 1.2 (New York City). Although all available statistics are meager, the total number of illegitimate white births for the United States can be estimated approximately as 35,100.

Relation to Infant Mortality

Most European countries recognize the evident relation between illegitimate birth and infant mortality, and furnish comparative statistics. The mortality of infants born out of wedlock without any exception is higher than among other infants, ranging from 1.3 to 2.3 times that found among legitimate infants. The countries having the lowest infant mortality among legitimate children also show the lowest mortality for infants borne by unmarried women.

With the exception of full statistics for German cities, little information is available in regard to comparative mortality rates of infants of illegitimate and legitimate births in cities. All available figures show a constant and marked decrease in infant mortality, presumably as the result of special protective efforts. Some of these cities have actually lowered infant mortality for the illegitimate below that of the legitimate for the entire country.

Figures on comparative mortality rates for infants born out of wedlock in the United States are not obtainable for the country as a whole, or for any individual state. The alarming conditions that may be disclosed by an analysis of infant mortality statistics in this country are indicated in the figures secured in a study of illegitimate births in Boston, and the situation discovered in the study of infant mortality in Baltimore. In Boston (in 1914) the mortality among legitimate infants was ninety-five for every one thousand, while infants born out of wedlock died within the first year of life at the rate of 281 per one thousand. In Baltimore the rate for white legitimate children was 95.5 per one thousand, and for white illegitimate children 315.5 per one thousand.

Status of the Child

Extra-marital unions throughout civilized time have been held to be inimical to the interest of society and of the children born as the result of such relationship. Gradually the social and legal theory developed that the children, at least, are innocent of wrongdoing and that they are entitled to the benefits commonly enjoyed by legitimate children. Recent social legislation in the United States has either specifically or by implication included children of illegitimate birth within the scope of their provisions. This applies especially to benefits under workmen's compensation acts. There is a tendency observable of the courts to hold that illegitimate children should not be made to suffer for the wrongdoings of their parents. Mothers' pension laws in some states explicitly or impliedly include children born out of wedlock, but are still excluding them specifically in the laws of twenty-nine states (1913). The Federal Act providing for allotments and compensation to dependents of soldiers and sailors includes illegitimate children among the beneficiaries if support has been ordered by the court, or if the child has been acknowledged by the father. Recent laws of some states, compelling paternal support both for mother and child, are characterized by their emphasis of making the welfare of the child the predominant consideration.

The laws of the Scandinavian countries are recognized as setting standards far in advance of those prevailing in most countries.

Protection and Guardianship

The earliest provisions for the protection of the child were occasioned by the prevalence of infanticide due to abandonment. The unmarried, ostracized mother often was unable to provide any care and abandoned her child. The first foundling asylums were started by the church as early as the sixth century. Gradually, however, it became obvious that the protective effect of such institutions was more than outweighed by the notoriously high infant mortality of all asylums in which infants are kept in close proximity in large numbers; but not until the beginning of the twentieth century did this system begin to be largely displaced through the granting of aid to mothers to enable them to care for their own children and, through the development of the principle of boarding out younger children, under guardianship of the state, in country districts. This modern system is now quite generally practised in Europe.

In the United States foundling asylums are still common in the large cities. In the best of these institutions an effort is made to keep the mothers with their infants and also to use them as wet nurses for abandoned infants. Later the children are given out for adoption or otherwise, often with very inadequate protection. Studies of the mortality among infants placed in such institutions have revealed an alarming situation, but improvement in this respect is noticeable.

A better appreciation of this problem is evidenced in the recent appearance of maternity homes which provide not only proper care during labor, but also provide the mother with necessary attention and assistance during pregnancy and a considerable portion of the nursing period, giving advice, and continuing supervision after discharge from the home. A few special agencies assist the mother to find a home and to care for her child, securing for her such employment that she can keep the child with her. In a number of cities of this country the system of home visiting for the purpose of following up registered births is in use, but this rarely includes the cases of illegitimate birth.

In England a recently organized National Council for the Unmarried Mother and her Child contemplates the establishment of special hostels for these mothers. The effect of war conditions in emphasizing the importance of public protection of infancy is also seen in France, where the period of financial assistance to the illegitimate mother has been extended from two to three years.

The history of the child welfare movement shows that the state everywhere is becoming increasingly active in taking measures for the protection of children who for one reason or another are not given proper care by their parents. It seems, especially from recent German legislation, that one of the chief functions of the public guardian is to secure support from the father. Most of the European countries now possess or are preparing adequate regulations of state's guardianship, which practically without exception includes the illegitimate child.

In the United States, with the exception of Minnesota, the supervision or guardianship of the state over children born out of wedlock occurs only as an incidental feature of state control or supervision over agencies or institutions caring for dependent children. Solely the law enacted in Minnesota in 1917 places upon the state more definite responsibility for the welfare of the children borne by the unmarried.

In the United States the handicap of the illegitimate child is defined almost entirely by the lack of normal home conditions, rather than by any civic or social disabilities. The child of illegitimate birth often suffers great injustice through being deprived of the care that is his due. Society is forced to bear a burden that properly belongs to the child's parents. Heretofore religious sentiment has largely ruled in the treatment of these cases and therefore, as a rule, emphasis has been placed upon saving the mother from the social consequences. Often the liability of the father for the support of the child has been overlooked. With the growing concern of the social agencies to render permanent help and to deal in a larger way with the whole problem, it is now being considered from a new angle, with the child as the central factor. Social agencies in this country have just begun to question whether society has not a peculiar responsibility towards these children, who from birth are deprived of the advantages of normal home life.

Comment of the Author

This change of point of view has made this entire problem a strictly medical one. Therein lies the importance of this report for the medical profession of this country. To be true, it deals only with the illegitimate child. It culminates in the final conclusion that the state has a definite responsibility to offer also to the illegitimate child those opportunities commonly enjoyed by the legitimate child, which enable him to survive at least the first year of his life. This is really all that is implied in the term "infant mortality." These greater opportunities of the legitimate child undeniably in the main consist in prenatal care and proper medical attention available for the mother during confinement, and in the proper feeding of the infant.

Are there really taxpaying citizens or legislators left in this country who would willingly deny such inalienable rights to survive to the illegitimate or any other child? To those familiar with European methods of handling this problem and acquainted with recent developments in the United States a report of this sort, though full of interesting facts, would seem superfluous—the necessity for its publication deplorable. But how disheartened must we obstetricians feel who are already endeavoring to convince the public that also the child of the poorer and even of the middle class of this country has the intrinsic right to all those advantages which at present are benefiting the illegitimate children in Europe and only the richer ones in this country.

STANDARDIZE HOSPITAL RECORDS

Of paramount importance in the composite picture of better medicine is the question of the standardization of our hospitals, says Dr. Edward F. Zigelman in the May issue of *Northwest Medicine*. The standardization of hospitals is the natural sequent of the standardization of the medical schools.

The taking of a proper history, both personal and physical, is the obligation of the physician. It is the duty of the hospital to furnish all possible aid in diagnosis and treatment and the hospital has a right to demand in return from the physician detailed records of the case and the results achieved. The checking up of end results becomes the practical test of efficiency. It is the manifest duty of the whole profession to promote the keeping of complete, concise records on the basis of which the hospital can be classified.

THE PROBLEM OF DISEASE*

From a report by the Public Health Committee of the New York Academy of Medicine, New York City.

WHEN analyzing the rates of prevalence of illness by partial and complete incapacity, we find that, while the two rates run in a way similar to each other, they show the highest prevalence in the third group (C), that is, where the income is from $6.51 to $8.50. Although the per centage of families in that group affected by illness was smaller than in the two preceding groups, yet, because the number of persons in the third group was smaller per family than in the other groups, and perhaps because of their better economic condition more wont to notice illness, their rate of illness per 1,000 individuals is higher than in the other two groups. It is to be remembered that during 1918 we had the epidemic of influenza which, because of its universal distribution, had in all probability disturbed the normal distribution of illness among the economic orders.

There exists a very definite relationship between economic status and the number of maternity cases per 1,000 families in each of the economic groups. The largest number, 265 per 1,000, occurred in the least prosperous group, and the smallest number, 115, in the most prosperous group. Although the rates of maternity are not figused, as they should be, on the basis of one thousand women of child-bearing age, because the ages of the people of the survey were not ascertained in a large number of cases, they are, in spite of inaccuracy in each particular instance, of distinct service for comparative purposes with regard to the comparative fecundity of the several racial and economic groups studied in this survey. The differences in the rates of maternity cases per 1,000 families among the several nationalities are very marked. While the average rate for all groups was 191 per 1,000 families, it was 339 per 1,000 for the Slavs; 228 per 1,000 for the Italians; 191 for the Hebrews; 161 for native born, and 108 for the Germans. The low rate among the Germans was probably due to the fact that the average age of the families was higher than in the other racial groups.

The Treatment of Illness

Of the 8,645 persons in the 2,023 families visited, 3,140 were reported as having suffered from 3,536 illnesses, during the year 1918, making an average of over one illness per person. This includes partial and complete disabilities. Of the total number of illnesses, 1,289 were cases of influenza. Barring influenza from immediate consideration, the rest of the amount of illness may be taken as representing the normal annual sickness problem of the families. In order to meet it the following types of treatment were employed by the families of the survey: 11.6 per cent of the cases of illness went to a hospital; 13.2 per cent of the illnesses were treated in dispensaries; 37.7 per cent consulted private physicians: 4.1 per cent, lodge doctors; 0.8 per cent, a visiting physician from an institution; 10.8 per cent called a midwife; and 23 per cent consulted a druggist or indulged in self-medication.

In Table VIII the type of treatment employed is shown according to the nationality of the families. In studying this table, it is to be remembered that it includes the cases of influenza which constituted 37.4 per cent of all the ailments recorded, and which were omitted from the preceding discussion. With this in mind, it will be readily seen that the figure of 8.8 per cent, as reported for the total number of illnesses treated in dispensaries, it greatly underestimating the part played by the dispensary. If the influenza cases be eliminated from the count, the percentage is 13.2 per cent. The least use of the dispensaries was made by the Slavs, who used for only 14 out of 661 the dispensary cases of illness, or 2.2 per cent. Next in order were the Italians, who used it to the extent of 3.1 per cent; the miscellaneous group used it in 7.3 per cent of cases; the Germans went to the dispensary, in only 9.3 per cent of cases; the Hebrews in 12 per cent; Negroes, 12.9 per cent; the native born, 16.6 per cent; and the Irish, 19.1 per cent of instances.

Racial Distribution

In the hospital distribution of cases the Slavs, Italians, the native born, the Germans, and the miscellaneous group showed a small relative use. It was highest among the Hebrews, the Irish, and the Negroes. Of all the races, the Hebrews and the Negroes used the hospital most in maternity cases, the Slavs and Italians least, and, accordingly, the use of the midwife is the highest among the latter two racial groups of our population.

With regard to the employment of a private physician, the Italians show the largest percentage, followed by the Slavs, Germans, and Hebrews. All of these groups employed a private physician in more than 50 per cent of cases of illness, while the native born did so in about 42 per cent of cases, the Negroes showing a similar percentage. The least amount of service of private physicians was shown among the Irish families.

The greatest use of the lodge doctor was made by the Hebrews, and then by the Germans and Italians. Of the 22 visits made by visiting physicians from institutions, 10 were to native born families, 5 to Hebrew, 3 to Irish, and 4 to Slav families. Eleven of these were maternity cases, 6 were influenza, 1 bronchitis, 2 colds, 1 tuberculosis, and 1 heart disease.

*The third of a series of three articles on dispensary service appearing in MODERN MEDICINE.

TABLE VIII.—EFFECT OF INFLUENZA ON RATES FOR TYPE OF TREATMENT—AGENCIES EMPLOYED FOR TREATMENT OF CONDITIONS OTHER THAN INFLUENZA—TABULATED BY NATIONALITY

Nationality.	No. of cases	Cases of influenza No.	Cases of influenza Per cent	No. of cases of other conditions	Hospital No.	Hospital Per cent	Dispensary No.	Dispensary Per cent	Private doctor No.	Private doctor Per cent	Lodge or society doctor No.	Lodge or society doctor Per cent	Druggist or self-medication No.	Druggist or self-medication Per cent	Midwife or Nurse No.	Midwife or Nurse Per cent	Doctor from an institution No.	Doctor from an institution Per cent
U. S. A.	596	176	28.9	420	35	8.3	92	21.9	150	35.7	10	2.4	115	27.4	12	2.9	6	1.4
Italian	844	422	50.	422	46	10.9	26	6.2	192	45.5	20	4.7	46	10.9	92	21.8	..	..
Hebrew	575	233	40.5	342	85	24.8	65	19.	110	32.2	29	8.5	34	9.9	15	4.4	4	1.2
Irish	209	51	24.4	158	18	11.4	37	23.4	38	24.1	6	3.8	55	34.8	2	1.2	2	1.2
Slav	661	241	36.4	420	10	2.3	14	3.3	183	43.5	6	1.4	97	23.1	106	25.2	4	.9
German	215	55	25.6	160	16	10.	20	12.5	70	43.7	10	6.3	39	24.4	5	3.1	..	..
Negro	193	37	19.2	156	25	16.1	23	14.7	52	33.3	1	.6	51	32.8	4	2.6	..	..
Miscellaneous	243	74	30.5	169	20	11.8	16	9.5	55	32.6	10	5.9	58	34.4	10	5.9	..	..
Total	3,536	1,289	37.4	2,247	255	11.3	293	13.	850	37.8	92	4.1	495	22.	246	10.9	16	.7

TABLE IX.—TYPE OF TREATMENT EMPLOYED BY FAMILIES VISITED IN THE COMMUNITY CANVASS—TABULATED BY ECONOMIC GROUP

All Boroughs.	Economic Group	Weekly Income *Per Capita*	No. of Families	No. of Families Having Illness		No. of Families Using Dispensary		Number of Families Using Hospitals: General Medical		Surgical		Maternity		Number of Families Consulting Private Doctor: General Medical		Maternity		No. of Families Employing Home Medication or Druggists		No. of Families Consulting Lodge or Factory Doctor		No. of Families Employing Midwives		No. of Families Callit Visiting Doctor from Institutions: General Medical		Maternit.	
				No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.
NEW	A	Less than $4.50	166	142	85.6	33	20.	21	12.7	12	7.2	3	1.8	76	45.7	2	1.2	35	21.	8	4.8	31	18.7	4	2.4	5	3.
	B	$4.51 to $6.50	488	404	82.8	83	17.	32	6.6	31	6.3	17	3.5	249	51.	23	4.7	115	23.5	31	6.3	79	15.8	4	1.8	3	.6
	C	$6.51 to $8.50	475	375	79.	64	13.5	19	4.	26	5.5	10	2.1	256	54.	18	3.8	107	22.6	19	4	69	14.5	1	2	2	.4
	D	$8.51 to $10.50	331	236	71.3	37	11.1	9	2.7	8	2.4	7	2.1	161	48.6	20	6.	67	20.	21	6.3	31	9.3	3	.9	1	.3
YORK	E	$10.51 to $15.50	253	173	68.4	13	5.1	5	1.9	8	3.2	4	1.6	111	43.4	9	3.6	58	23	14	5.5	15	6.	2	.7	..	...
	F	$15.51 to $20.50	57	41	72.	6	10.5	6	10.5	3	5.2	1	1.7	23	40 3	5	8.8	12	21.	..	...	3	5.2	..	...	..	...
	G	$20.51 plus	32	23	72.	4	12.5	3	9.4	1	3.1	1	3.1	18	56.2	1	3.1	9	28.1	3	9.4	1	31.	..	...	..	...
CITY	Not determined		221	147	67.	21	9.5	9	4.	10	4.5	2	.9	85	38.4	11	5.	43	19.4	11	5.	10	4.5	2	.9	..	...
	Total		2023	1541	76.2	261	12.8	104	5.1	99	4.9	45	11 6	979	48.3	89	22.9	446	22.	107	5.2	239	11.8	16	.8	11	.5

TABLE VII.—TYPE OF TREATMENT FOR 3,536 CASES OF INCAPACITY IN NEW YORK CITY—TABULATED BY NATIONALITY

Nationality	Use of institutional treatment: Dispensary		Hospital		Hospital Maternity		Total		Under treatment of individual physician.: Private Physician		Lodge Physician		Visiting Physician from Institution		Total		Non-Professional treatment: Midwife		Self-medication or Druggist		Total		Total No. of Cases	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
U. S. A. ..	99	16.6	36	6.1	8	1.3	143	24.	249	41.8	15	2.5	10	1.7	274	46.	10	1.7	169	28.3	179	30.	596	100.
Italian	26	3.1	44	5.3	2	.2	72	8.6	554	65.6	41	4.8	..	..	595	70.4	92	10.9	85	10.1	177	21.	844	100.
Hebrew	69	12.	67	11.6	21	3.7	157	27.3	290	50.5	64	11.2	5	.9	359	62.6	15	2.5	44	7.6	59	10.1	575	100.
Irish	40	19.1	19	9.1	3	1.4	62	29.6	64	30.7	6	2.9	3	1 4	73	35.	2	.9	72	34.5	74	35.4	209	100.
Slav	14	2.2	15	2.3	..	..	29	4.5	387	58.2	7	1.2	4	.6	398	60.	106	16.	128	19.5	234	35.5	661	100.
German ...	20	9.3	14	6.5	3	1.4	37	17.2	118	55.	12	5.5	..	..	130	60.5	4	1.9	44	20.4	48	22.3	215	100.
Negro	25	12.9	20	10.4	7	3.6	52	26.9	82	42.5	1	.5	..	..	83	43.	4	2.1	54	28.	58	30.1	193	100.
Miscellaneous	18	7.3	19	7.7	2	.8	39	15.8	116	48.1	12	4.8	..	..	128	52.9	7	2.9	69	28.4	76	31.3	243	100.
Total	311	8.8	234	6.8	46	1.3	591	16.9	1860	52.6	158	4.4	22	.6	2040	57.6	240	6.8	665	18.7	905	25.5	3536	...

The largest inclination to seek non-professional care was exhibited by the Irish, who used patent medicines or tried some sort of self-medication in 34.5 per cent of cases of illness; the least amount of that attitude was shown by the Hebrews, who resorted to self-medication in only 7.6 per cent of instances. The Italians follow the Hebrews very closely. For more than one-fourth of their recorded illnesses the native born group and the negro group used patent medicines and the like for the self-treatment of their conditions.

With the elimination of influenza the percentage figures are changed, but the tendencies in the several directions remain unchanged, as shown by Table VIII. Incidentally, Table VIII presents the distribution of influenza among the radical groups, showing the highest rate of prevalence

TABLE X.—TYPE OF CARE EMPLOYED IN THE 387 MATERNITY CASES OCCURRING IN 1918—TABULATED BY NATIONALITY

Nationality	No. of families	No. of maternity cases	No. of maternity cases per thousand	Hospital		Private Physician		Doctor from institution to the home		Midwife		Unattended	
				No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
U. S. A.	273	44	161	8	18.2	21	47.6	4	9.1	10	22.7	1	2.3
Italian	459	105	228	2	1.9	11	10.5	..	..	92	87.5	..	..
Hebrew	330	63	191	21	33.2	23	36.6	4	6.6	15	23.6	..	..
Irish	123	12	98	3	25.	6	50.	1	8.3	2	16.7	..	..
Slav	357	121	339	..	...	11	9.1	2	1.6	106	87.5	2*	1.6
German	148	16	108	3	18.7	9	56.3	..	..	4	25.	..	..
Negro	199	12	60	6	50.	3	25.	..	..	3	25.	..	..
Miscellaneous	134	14	85	2	14.3	5	35.7	..	..	7	50.	..	..
Total	2023	387	191	45	11.6	89	22.9	11	2.8	239	61.8	3	.7

*Treatment not recorded.

TABLE XI.—TYPE OF MATERNITY CARE AT LAST CONFINEMENT—TABULATED BY TIME WHEN EMPLOYED

Year	CARE AT CONFINEMENT																		Total
	Pre-natal Care		Post-Partum Care		Nursing Care		Hospital		Doctor from Institution to Home		Private Physician		Midwife		Unattended Professionally		Not determined		
	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	No.	Per cent.	
1918	56	14.4	135	34.9	19	4.9	45	11.8	11	2.8	89	22.9	239	61.8	1	.2	2	.5	387
1917	47	12.6	130	34.8	6	1.6	34	9.1	33	8.8	81	21.8	223	59.9	1	.2	1	.2	373
1916 and 1915	16	5.6	55	30.9	5	2.8	16	8.9	13	7.3	45	25 4	95	53.4	6	3.3	3	1.7	178
1914 and 1913	11	10.4	31	29.5	9	8.5	8	7.6	10	9.5	32	30.5	51	48.6	4	3.8	..	...	105
1912 and 1911	9	11.8	38	50.	1	1.3	6	7.9	5	6.5	20	26.4	42	55.3	1	1.3	2	2.6	76
1910 and 1909	5	7.4	6	8.9	12	17.9	6	8.9	2	2.9	16	23.9	39	58.3	1	1.4	3	4.4	67
1908 to 1903, inclusive	12	13.5	22	25.	1	1.1	2	2.3	4	4.6	32	34.6	45	51.2	5	5.7	..	...	88
Prior to 1903	3	2.	21	14.5	18	12.5	2	1.3	1	.7	35	24.4	96	66.7	9	6.2	1	.7	144
Total	153	10.7	438	30.8	71	5.	119	8.3	79	5.5	350	24.7	830	58.7	28	2.9	12	.8	*1418

*165 births were recorded for which dates were not given, or type of treatment determined.

TABLE XII.—TYPE OF TREATMENT EMPLOYED BY FAMILIES IN 1918—TABULATED BY BOROUGHS.

Borough.	No. of Families	Dispensary		Hospital				Private Physician		Doctor from Lodge Society or Institution		Non-Professional Care		Maternity Care							
				Medical		Surgical								Hospital		Private Doctor		Midwife		Doctor from an Institution	
		No	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Manhattan	1261	211	16.7	79	6.3	71	5.6	566	44.9	86	6.8	291	23.4	36	5.4	48	3.8	88	6.9	10	.8
Brooklyn	493	41	8.3	13	2.6	14	2.8	262	53.	22	4.5	126	25.6	5	1.	21	4.3	109	22.1	1	.2
Bronx	161	7	4.-	10	6.2	5	3.1	88	54 5	7	4.4	20	12.4	3	1.9	10	6.2	27	16.8	..	..
Queens	49	1	2.	..	...	6	12.3	29	58.7	2	4.1	7	14.3	1	2.	..	...	6	12.3	..	..
Richmond	59	1	1.7	2	3.4	3	5.1	41	69.5	5	8.5	3	5.1	..	...	10	16.9	9	15.3	..	..
Total	2023	261	12.8	104	5.1	99	4.9	986	48.6	122	6.	447	22.1	45	2.2	89	4.4	239	11.7	11	.5

among the Italians, Hebrews and Slavs, and the lowest among the Negroes.

Predilections in Medical Care

While there evidently are distinct racial predilections for types of medical care, no similar definite division is discernible among the several economic groups. In Table IX the available information is tabulated by the economic group. Resort to hospitals for both general medical and surgical conditions is greater in the lower economic orders than in the higher. There is evidently no relation between maternity hospital treatment and economic status. There is, curiously, no apparent correlation between the employment of private physicians and income. The two groups which show the largest percentage of consultations with private physicians are groups C and D, on incomes, respectively, of $6.51 to $8.50 and $8.51 to $10.50, while the lowest economic group and the highest two show respectively a smaller percentage of cases treated by private physicians. The employment of the midwife is in inverse ratio to the economic status of the family. The largest relative number of families employing midwives was found among those who received the least income, and it declines as the income increases.

The 387 cases of childbirth that occurred in 1918 among the 2,023 families which were studied were taken care of in the following manner: 11.6 per cent were delivered in hospitals; 22.9 per cent by private physicians; 61.8 per cent by midwives; 2.8 per cent by visiting physicians from hospitals; 1 case was unattended, and for 2 cases information as to care was not obtainable. As has been pointed out in another connection, the largest percentages of

cases delivered by midwives were among the Slavs and Italians; 87.5 per cent of the cases in each of these groups were taken care of in that way; 22.7 per cent of the cases in the native born families were under midwife care. The Negroes and the Germans had one-fourth each of their cases handled in that way; about the same percentage of Hebrew cases employed midwives, and the Irish showed the lowest figure in that respect (Table X).

In all instances, women were questioned with regard to care at their last confinement, irrespective of when it occurred. On the basis of the information obtained we have been enabled to prepare for these families a sort of historical retrospect with reference to the care received during and prior to childbirth. The table (Table XI) shows a growing tendency toward larger hospitalization of cases, a practically stationary condition with regard to the employment of midwives, and a slight decrease in the proportion of private physicians in attendance.

No definite deductions can be drawn from the figures with respect to prenatal, postpartum and nursing care. The figures are too irregular to exhibit any definite tendencies. The highest proportion of cases receiving prenatal care was reported for 1918, but the highest figures for postpartum care are for the years 1911 to 1912, and for nursing care, 1909 to 1910.

The borough distribution of the data on type of treatment of disease employed brings out several points of interest. The largest use of the dispensary is made in Manhattan, twice as many families per hundred resorting to it in Manhattan as in Brooklyn, for example. In the other boroughs, the dispensary was used by still smaller percentages of families. Differing only in proportion, the same applies to the use of hospitals in the several boroughs. Conversely, the services of private physicians were used least in Manhattan in the maternity cases, as well as in all other conditions (Table XII).

The illnesses which were reported in the families during the year 1918 have been classified by as accurate diagnosis as could be applied to the descriptions and designations given by the families. The diseases were classified by groups and tabulated so as to designate the type of treatment each condition had received. Although the designations were frequently very loose, it was possible to bring up the nosology to fifty-six items, although in several instances broad categories were employed.

The results of this study are interesting in several respects, one of them being the marked difference in the proportion of influenza and of pneumonia cases reported as having been taken care of in hospitals. Of the 1,289 cases of influenza reported, more than three-fourths were treated by private physicians, and less than 2 per cent in hospitals; while for pneumonia, although the percentage of employment of physicians was the same as for influenza, more than 14 per cent of the cases were treated in hospitals. Only 7.6 per cent of common "colds" were treated in the dispensary; the remainder of the 474 cases consulted private physicians in 38.6 per cent of the cases and in 48 per cent of the cases employed self-medication. Of the tonsillitis cases, more than one-fifth went to the dispensary for treatment, and the persons suffering from digestive disturbance resorted to the dispensary for only 14 per cent of such illness, while in more than 64 per cent of instances they sought the service of a private physician. It became apparent that the tendency is very definite toward hospitalization of certain diseases, irrespective of economic conditions.

LAW FOR THE DOCTOR*

By LESLIE CHILDS, Attorney at Law, Indianapolis.

The Right of Physician to Rate Himself Relative to His Professional Standing, for the Purpose of Determining Amount of His Fee.

IT has been generally held that a physician, in the absence of a custom of his own, is entitled to compensation for professional services in accord with charges usually made for such services by other physicians of similar standing. And, in rating himself, the physician has the right to claim standing in the class to which, in his opinion, he properly belongs. If his charges are contested on the grounds that he has rated himself too highly, the burden of proving this rests upon the contestant; and, in the absence of evidence to the contrary, the physician's own valuation of the value of his services will stand.

A case on this point, in which it was sought to reduce the charges of a physician on the grounds that he was a young practitioner, and as such had no right to the fees charged by those who were older and whose reputations were established, was that of Re Percival, 137 La., 203. The facts surrounding the case were considerably involved and have been greatly abbreviated, but in so far as material to this discussion were substantially as follows:

For some time prior to April 20, 1914, Miss Mary Percival, a wealthy resident of the city of New Orleans, had been attended professionally by an eminent neurologist. Miss Percival, not being altogether satisfied with his treatment, requested Dr. John T. O'Ferrall to take charge of her case. Dr. O'Ferrall thereupon began attending her on the above mentioned date and continued in charge until June 20, 1914, when Miss Percival died.

Thereafter Dr. O'Ferrall presented a bill for $1,500 for his services which the executor of the Percival estate declined to acknowledge, and the doctor filed an opposition to the executor's account. The case was tried in the district count and a judgment for $262 was rendered in favor of the doctor. From this judgment Dr. O'Ferrall appealed to the supreme court.

As the principal reason for refusing to allow the doctor's claim for $1,500 was based upon the fact that he was a comparatively young practitioner, considerable evidence was allowed into the record bearing on his training and experience. Relative to this Dr. O'Ferrall testified, without contradiction, as follows:

". . . That he was graduated from the medical department of Tulane University of Louisiana, in 1908; that he attended the Army Medical School in Washington City, from which he was graduated in 1909; after which he paid a short visit to New Orleans, and then served four or five months in Bellevue Hospital, in New York; that he then returned here and served five or six months as the assistant of Dr. Van Wart of this city, and then went to Winser, Miss., where he was engaged in the general practice of his profession for two years and a half, with the idea, however, of specializing in orthopedics; that he went from Winser to Boston, Mass., where he entered the Massachusetts General Hospital in which he remained for a year, when he was graduated from the orthopedic department; and that he then spent four months visiting the important orthopedic clinics in Italy, Germany, France, and England, following which he returned to this country, and came to New Orleans in April, 1914."

Relative to the services rendered by Dr. O'Ferrall the evidence showed that he took charge and treated the case exclusively and most assiduously from April 20 to May 22.

*The fourteenth of a series of articles on "Law for the Doctor," written for MODERN MEDICINE by Leslie Childs.

During which period he made two or three visits each day, varying in length from half an hour to several hours. He also made a number of mechanical appliances, known as "Thomas Collars," took a blood test, accompanied his patient to see an x-ray specialist, and generally devoted himself to the case.

On May 22, being unable to determine whether the disease was orthopedic or neurological, or both, he advised that another specialist be called. His advice was taken and he called Dr. Hummell. Later, in consultation with Dr. Hummell, it was agreed that a surgeon should be called and an operation performed. The surgeon was called and advised that the patient be removed to Touro Infirmary. Dr. O'Ferrall attended to the hospital arrangements and the patient was taken there, on June 10, after which the surgeon performed two operations with an interval of about a week between them. On June 20, after the second operation, the patient died.

Evidence bearing on the charges made by other specialists who treated Miss Percival showed that during the two months that Dr. O'Ferrall had charge of her case an eminent neurologist, Dr. Hummell, and a distinguished surgeon, Dr. Matas, were called in consultation, and rendered certain services. The bill of Dr. Hummell amounted to $1,875, and that of Dr. Matas to $1,250; both of these bills being paid without objection.

In passing upon the points raised in the record, and in particular on the cutting down of Dr. O'Ferrall's claim because he was a young practitioner, the supreme court, among other things said:

"Our learned brother [the trial judge] was also of opinion that a young practitioner has no right to charge, or expect to be paid, the fees charged by those who are older and whose reputations have been established, and hence he allowed opponent [Dr. O'Ferrall] but three dollars each, for day visits, and six dollars for night visits, although, according to the evidence, the customary charges by specialists appear to be five dollars and ten dollars, respectively. It may happen, however, that the knowledge of the schools goes beyond that upon which reputations have been founded, and that the later graduate, bringing, with his diploma, the latest discoveries, is more competent to deal with a particular case than the earlier, with the experience of a past generation. However that may be, any physician has the right, in the absence of a custom of his own, to charge for his visits, day or night, at least the fee sanctioned by the custom of the community in which he lives; nor is he obliged, in so doing, to rate himself below the class to which, in his opinion, he properly belongs; and in such a case the burden rests upon the patient who refuses to pay to show a better reason for such a refusal than that the physician is comparatively fresh from the seats of learning. It is therefore ordered that the judgment appealed from be amended by increasing the amount to be allowed to the opponent [Dr. O'Ferrall] to $1,500, and, as thus amended, affirmed, at the cost of the succession."

MILITARY AND CIVIL HYGIENE

In commenting on the delivery of the Chadwick lectures by Sir John Goodwin, Director General of the Army Medical Service, a recent issue of the *Lancet* states that if there is any one thing more clear than another it is that the practice of hygiene in a civilian community cannot be imposed by an edict, but can only be built up on a basis of individual enlightenment. Education is the chief and in the final issue the only effective instrument of civil hygiene.

Military hygiene, with aims and objects precisely similar, deals with a disciplined populace and an organization which permits of action for the community as easily as for the individual. For this reason military hygiene has made progress vastly greater than civil hygiene, as evidenced by greatly reduced mortality rates cited in very able summaries of past and present hygiene.

The last of the three lectures, on "Army Hygiene of the Future," brings together military and civil hygiene in which perhaps the most urgent and timely hygienic lesson of the war is stated to lie in the efficacy of simple materials used in an intelligent way. The lives of regiments were saved by the use of empty tins which a local sanitary authority would have consigned to the refuse heap. Small sanitary authorities, knowing nothing but their inability to afford costly apparatus, should be roused to action. The presence of soldiers drilled year in and out in the elements of hygiene should stimulate this sometimes thankless work which should yet bear fruit in a healthy countryside.

BOTULINUS POISONING

The United States Department of Agriculture have issued information concerning botulinus poisoning due to the consumption of ripe olives. According to the Department, "The experts agree that the trouble is not inherent in the type of container used. Whether the olives be packed in glass jars or in the cans, they may be rendered absolutely safe if proper precautions are taken to prevent the infection with bacteria during handling, and if the packages when filled are sterilized at a sufficient temperature and for a sufficient period of time. It is entirely practicable, say the specialists, to sterilize both glass containers and tin cans at a temperature high enough to insure absolute sterilization.

"Unfortunately some packs of ripe olives put up in glass, as well as some in tin, during past seasons were not prepared with all the precautions now known to be essential, and were not sterilized at a sufficiently high temperature, and some of these goods in glass were responsible for the fatalities. It is probable that of all the ripe olives on the market but an extremely small number actually contained *Bacillus botulinus*.

"Since there is a possibility of danger from any ripe olive which has been insufficiently sterilized, the Bureau of Chemistry has suggested to the industry that all ripe olives in glass or in tin, wherever located, be carefully inspected and that any which show the slightest degree of decomposition be destroyed. It has further suggested that all ripe olives which have not been processed at a sufficiently high temperature be returned to insure complete sterilization. With few exceptions the olive packers have most heartily fallen in with all suggestions made in the interest of public safety and by mutual agreement entered into by practically all of the packers they are now taking steps to withdraw from the market all ripe olives in glass containers which has not been sterilized at a sufficient temperature. Similar steps are being taken by some of the packers in the case of minced olive relishes, in view of the fact that one death due to the consumption of such a product has been reported. While concerted action to remove ripe olives packed in tin and processed at a low temperature has not been taken by the packers, the fact that spoilage in tin has so consistently resulted in making a "swell" out of the can constitutes a warning to the purchaser which is not often disregarded. There is no reason to anticipate danger from properly packed and processed ripe olives, whether they be packed in tin or glass containers."

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

SURGICAL DISEASES OF CHILDREN. A Modern Treatise on Pediatric Surgery. By Samuel W. Kelley, M.D., LL.D., honorary professor of surgical diseases of children, Medical Department, National University, St. Louis; Pediatrist and Orthopedist, St. Luke's Hospital, Cleveland; formerly professor of diseases of children, Cleveland College of Physicians and Surgeons, Medical Department, Ohio Wesleyan University.[1]

The author argues that there should be children's surgeons as well as children's physicians. In this volume he takes up pediatrics, orthopedics, and general surgery as it applies to children. He pays particular attention to malformations, principally congenital, the surgical conditions which occur mostly in children, and the factors which modify surgical procedure in patients of tender years. Medical treatment is mentioned in those conditions where it is indicated either as curative or as an adjunct to surgical procedure.

The chapters on orthopedics are fairly complete. The chapter on examining children as well as the pre-operative and post-operative care of young surgical patients is well written. As a textbook of modern surgery it can hardly claim pre-eminence. That fibromata change into carcinomata, p. 64, is not in accord with modern pathology. Sapremia is a term which is not as much in vogue as formerly and the author leaves us in doubt as to the exact conditions under which it would occur, p. 125. Finally, it is clear the author does not know just what we understand by the terms "septicemia" and "cellulitis," as he describes the treatment of cellulitis under the heading "septicemia," p. 126 and p. 139, states that "cellulitis" and "Ludwig's Angina" are synonymous, occurring, *e.g.*, as complication of peritonitis and osteomyelitis.

SYPHILIS. A Treatise on Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis and Treatment. By Henry H. Hazen, A.B., M.D., professor of dermatology and syphilology, Medical Department of Georgetown University; professor of dermatology and syphilology, Medical Department of Howard University; member of American Dermatological Association, and National Association for Control of Syphilis.[2]

Any work planned to cover the entire field of syphilis of necessity must include the consideration of certain phases of the pathology practically of every organ in the human body. Such a task obviously can be accomplished only by the cooperation of a large number of experts in special fields. As the result of such collaboration in the past many large, unwieldy, many volumed system and "Handbuch" have been produced, but, in our knowledge, never before a really compact, complete but not complex book like the one before us. In this treatise, after a general discussion of etiology, pathology, and the clinical course of the syphilitic infection, different writers in a number of chapters consider syphilitic manifestations in the respiratory, digestive, genito-urinary, nervous, vascular systems, and in special organs, such as eye, ear, and endocrine glands. The volume closes with chapters dealing with congenital lues, the diagnosis, prognosis, prophylaxis, and treatment of syphilis. Each contributor presents his material in concise form and appends a carefully selected bibliographic list for the convenience of those desiring further information. Most remarkable and praiseworthy for a work of this kind and at the same time a convincing proof of skillful editorship, is the almost total absence of repetition. In spite of the many illustrations, including sixteen colored figures, Hazen was able to compress the contributions of more than a dozen collaborators into the space of over a little more than six hundred pages, representing a most meritorious addition to syphilologic literature.

NEOPLASTIC DISEASES. A Text Book on Tumors. By James Ewing, M.D., Sc.D., professor of pathology at Cornell University Medical College, New York City.[3]

This book is a most painstaking compilation representing the work of many years and bringing into a form for convenient reference a full and reliable account of the etiology, morphology, and the development of tumors.

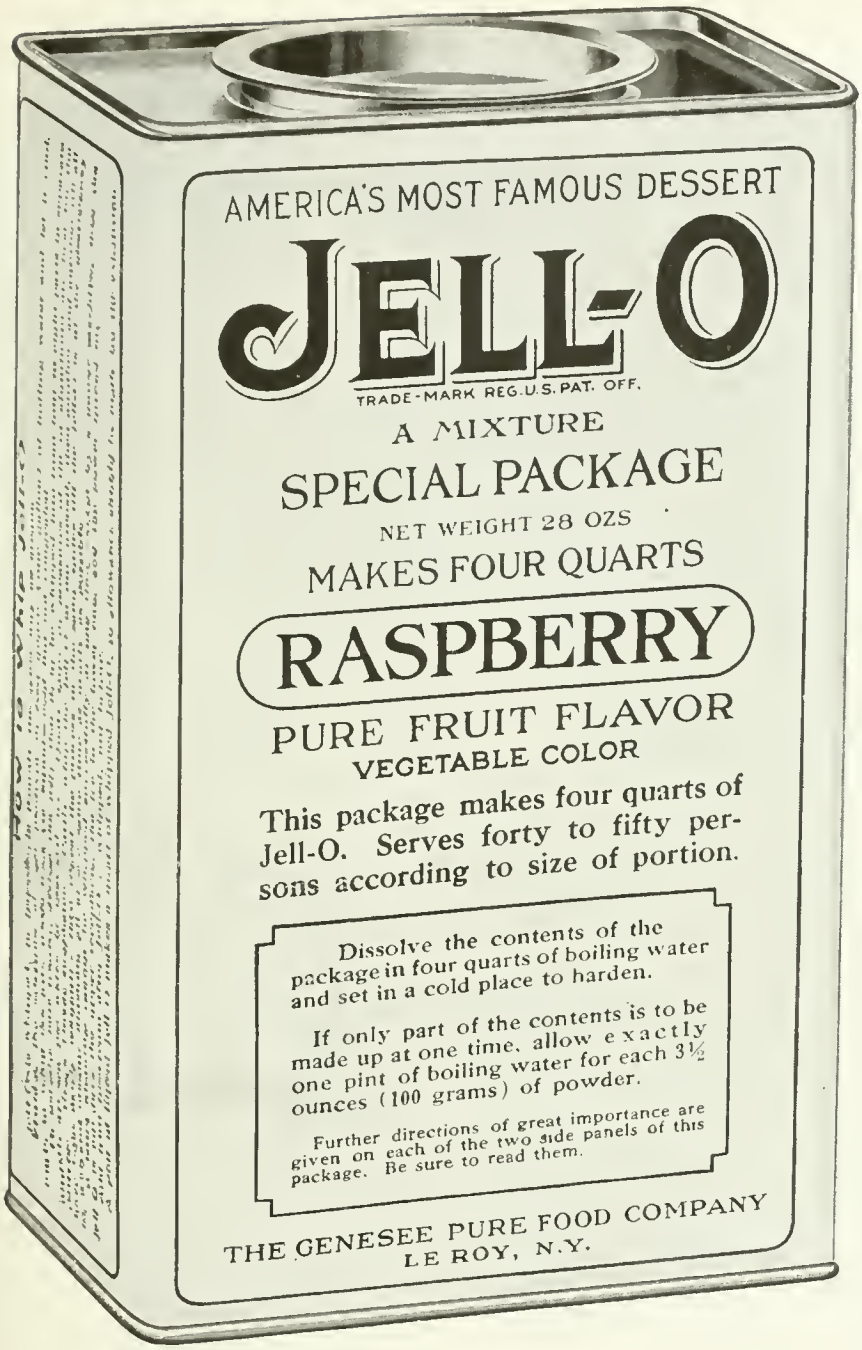
The general history of tumors and their classification form the thesis of the opening chapters. The subject of malignancy is adequately dealt with in a most thorough analysis of recent experimental work in cancer.

The text is abundantly illustrated. The completeness of the bibliography attests the thoroughness of the work and affords an indication of the trend in this interesting field.

PHYSICAL DIAGNOSIS. By Richard C. Cabot, M.D., professor of medicine in Harvard University, chief of the West Medical Service at the Massachusetts General Hospital.[4]

One always welcomes a new edition of Cabot's justly popular textbook. In the present edition a new section is devoted to hilus tuberculosis, that often unrecognized form of phthisis probably having its origin in infancy or childhood. The physical findings at the onset are often very slight,—some narrowing of the Kroenig zones. The diagnosis must rest upon the constitutional symptoms, pain, and the x-ray findings. Tubercle bacilli are often absent until late. Renewed emphasis is placed on the necessity for operative exploration in cases of suspected interlobar empyema with adequate physical signs. The author has altered his ideas concerning blood pressure in several respects. He acknowledges that simple digital palpation of the artery is entirely unreliable and advises instrumental methods only. He is likewise correct in his changed attitude towards the positive clinical value of the diastelic pressure determinations.

1. E. B. Treat & Co., New York, 1914.
2. C. V. Mosby, St. Louis, 1919.
3. W. B. Saunders Company, Philadelphia, 1919.
4. William Wood & Co., New York, 1919.


AMERICA'S MOST FAMOUS DESSERT
JELL-O
TRADE-MARK REG. U.S. PAT. OFF.
A MIXTURE
SPECIAL PACKAGE
NET WEIGHT 28 OZS
MAKES FOUR QUARTS
RASPBERRY
PURE FRUIT FLAVOR
VEGETABLE COLOR
This package makes four quarts of Jell-O. Serves forty to fifty persons according to size of portion.
Dissolve the contents of the package in four quarts of boiling water and set in a cold place to harden.
If only part of the contents is to be made up at one time, allow exactly one pint of boiling water for each 3½ ounces (100 grams) of powder.
Further directions of great importance are given on each of the two side panels of this package. Be sure to read them.
THE GENESEE PURE FOOD COMPANY
LE ROY, N.Y.

The Special Size for Hospitals

One gallon instead of one pint of Jell-O is made up from the new Special Package of Jell-O, saving nine-tenths of the time required for opening and emptying the common small size.

This change eliminates the last remaining bit of real work connected with the preparation of Jell-O dishes.

Among the dishes which the nurse likes to prepare are the refreshing and attractive salads of which the foundation is Jell-O. These are made by adding to the Jell-O chopped celery and bits of fruit and nutmeats. They are moulded in teacups or little moulds and each is turned out on a lettuce leaf.

As Jell-O contains sugar and the other ingredients that would have to be added if plain gelatine were used, there is a great saving of time and labor, and the result is always satisfactory. The nurse who uses Jell-O for her dainty dishes is never obliged to depend upon luck.

Jell-O is made in six pure fruit flavors: Strawberry, Raspberry, Lemon, Orange, Cherry, Chocolate.

The new Special Package for hospital use contains enough Jell-O to make four quarts of jelly as against one pint of the regular small size.

THE GENESEE PURE FOOD COMPANY
Le Roy, N. Y., and Bridgeburg, Ont.

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.
R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.
H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

22-24 East Ontario Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

POISONOUS PROTEINS. The Herter Lectures for 1916 Given in the University and Bellevue Medical School, New York. By Victor C. Vaughan, M.D., LL.D., Dean of the University of Michigan Medical School.[5]

This little monograph contains some of the results of Vaughan's extensive investigations of poisonous proteins. General outlines are given for the procedure to obtain poisonous proteins from bacterial and vegetable sources. The reactions resulting from the introduction of these products into the animal organism are described. One chapter is devoted to the discussion of protein fever. The author does not maintain that all the conclusions are correct but that they are supported by his experimental data. The lectures are not only interesting and instructive but they suggest questions for further investigation.

BACTERIOLOGY IN ABSTRACT. By A. B. Wallgren, B.S., M.D., assistant professor of biology, University of Pittsburgh; pathologist to the Pittsburgh Hospital, St. Margaret's Hospital and Columbia Hospital. Author of "Histology in Abstract" and "Pathology in Abstract."[6]

The only conceivable excuse for such a book as this is to meet the requirements of some examination. Nor is the treatment of the subject at all complimentary to the intelligence of the supposed examiners. The "practical" instructions go further than are useful to one who has no need to apply them; they are insufficient to serve as a guide in the laboratory. The author seems to know little and to think less of work done under other than German names. A sentence of the following construction may perhaps contain the key to this: "It is as yet not positive as to the specificity of this organism for whooping cough." The English is weak throughout. The author is under the impression that "media" is a noun in the singular number.

A TEXT BOOK UPON THE PATHOGENIC BACTERIA AND PROTOZOA FOR STUDENTS OF MEDICINE AND PHYSICIANS. By Joseph McFarland, M.D., Sc.D., professor of pathology and bacteriology in the University of Pennsylvania; pathologist to the Philadelphia General Hospital.[7]

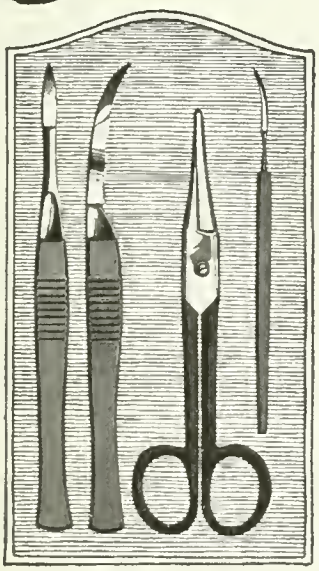
This ninth edition of McFarland's text book on Pathogenic Bacteria and Protozoa is even more welcome than previous editions of his work. The book has kept pace with the developments of the subject and there is incorporated in it all of the work up to practically the time the book went to press. The chapters on rat-bite fever and infectious jaundice indicate this. The illustrations are excellent, numerous, and much clearer than in most text books on bacteriology. The subject matter is complete, but is well condensed into the smallest possible amount of space. The arrangement of the book is systematic, both from the point of view of a text book and a book of reference. The table of contents is well arranged and the index is unusually complete and easy of reference. The bibliographic index is especially to be commended, which, together with the bibliographic references given in footnotes, gives the book an unusual value to a student or a laboratory worker. The thoroughness with which the bibliographic references are given, gives McFarland's book the position of being almost unique in this respect among American text books. It is hoped that other authors of text books will imitate this excellent quality. This boek can be recommended as the best elementary reference book known to the reviewer on the subject.

5. C. V. Mosby Company, St. Louis, 1917.
6. Medical Abstract Publishing Company, Pittsburgh.
7. W. B. Saunders Company, Philadelphia, 1919.

(Continued on page 24)

Always ready-

Always Sharp ~ Always Untarnished ~ Always Polished



STELLITE SURGICAL INSTRUMENTS meet in every particular the exacting needs of the profession. Stellite is an alloy of semi-rare metals, containing no iron, and surgical instruments made of it will not rust, tarnish, stain or corrode. They are not affected by sterilizing processes or preparations, including iodine and bichloride of mercury, nor are they affected by heat up to 1800° F.

Instruments made of this beautiful metal are harder than any steel, and will take keener points and edges, yet they may be readily resharpened should the need arise. They will remain sharp much longer than instruments of steel.

STELLITE Surgical Instruments are not only the best obtainable, but are, we believe, the most beautiful made. Surgeons everywhere use and endorse them.

The Haynes Stellite Company
Patentees and Sole Manufacturers
Kokomo, Indiana, U. S. A.

STELLITE

Not Steel ~ But Its Master

KING'S

PATENTED PROCESS

DEHYDRATED
Fruits and Vegetables
Retain their Full Dietetic Value

—with Threefold Economy

No Waste—cleaned, pared, cored or pitted.

No Work—already prepared for cooking and table.

No Special Storage accommodations required—take up much less room.

Fresh fruits and vegetables to tempt the capricious appetites of convalescents are at your command all the year around.

"Only the Water Is Removed"

from King's Dehydrated Fruits and Vegetables. When wanted for use, the water is replaced by soaking a few hours, and the products are then ready to be cooked in the usual manner.

King's Products may be stored an indefinite length of time safely, because the King's Process makes spoilage or chemical changes impossible. When properly restored they are as they were when freshly picked—the choicest of the choice, true to color and flavor.

INVESTIGATE KING'S PRODUCTS BEFORE BUYING FRUITS AND VEGETABLES IN QUANTITIES

Quick shipments will be made from Chicago stocks. For hospital use King's Products are packed in bulk containers.

Get full information; fill out and mail attached coupon today.

King's Food Products Company
PORTLAND, OREGON

Eastern Office—First National Bank Bldg., Chicago

KING'S FOOD PRODUCTS CO.,
45 Fourth St.,
Portland, Oregon.

Please send complete price list covering the entire line of King's Dehydrated Food Products.

Name .....

Street..... City and State.....

Your Name .....

NERVOUS AND MENTAL DISEASES. By Archibald Church, M.D., professor of nervous and mental diseases in the Northwestern University Medical School, Chicago; consulting alienist, Bellevue Hospital; manager of the Craig Colony for Epileptics at Sonyea, N. Y.[8]

It seems almost a useless expenditure of energy to attempt a critical review of such a standard textbook as Church and Peterson has grown to be since it first appeared many years ago. No book can run through so many editions and still be so popular unless it is worthy. This book certainly deserves everything.

RAMBLING RECOLLECTIONS. An autobiography. By A. D. Rockwell, M.D.[9]

If the reader of this book is looking for inspiration which will stir him to action in his chosen field, he will be disappointed. If he is a bit older and the wear of the winter days is beginning to show itself by the longing for the rest in the shade of a summer vacation, he will enjoy this book. As the title indicates, the book is merely a series of interesting recollections of busy life. Stories of the Civil War and the life of the soldier fill many pages; Rockwell's contacts with different men and women of his day fill many more. It is a good book to carry with you on your vacation.

MANUAL OF SURGERY (Rose and Carless). For Students and Practitioners. By Albert Carless, C.B.E., M.B., M.S., Lond., F.R.C.S., Colonel (Temp.), A.M.S.[10]

A certain venerable astronomy professor would say when he wanted to bestow special praise upon some astronomical treatise, "That work, gentlemen, is a veritable mine of information." This is a fitting description of Rose and Carliss, tenth edition, a veritable mine of surgical information. In preparing this edition the lessons taught by the war were analyzed with a view to their applicability to civil life, and, where deemed advisable, were incorporated. Like the former editions, the book is well written, the material carefully chosen, and the subjects freely illustrated. The reader feels throughout the benefit of the author's wide experience and profound surgical judgment.

FOOD INSPECTION AND ANALYSIS. For the Use of Public Analysts, Health Officers, Sanitary Chemists, and Food Economists. By Albert E. Leach, S.B. Revised and enlarged by Andrew L. Winton, Ph.D.[11]

The reviewer of this book believes that the art of feeding can be made the scientifically therapeutic procedure as is the art of giving drugs. One of the most important factors which will improve scientific dietetics is an extension of the knowledge of foods. He will then start off his review of the book by the remark that physicians should be included in the group of food economists for whom the book is written. Chapters are devoted to details of laboratory equipment, to the methods of food analysis, and to the analysis of all kinds of foods. An appendix containing many beautiful photomicrographs of cross-sections of food is not the least interesting part of the book. The book is so thorough, so complete, and, despite its wealth of technical detail, so easily read, that we could wish it to become a part of the library of every hospital and of every physician who has any hopes of intensive and scientific application of food to the needs of his patients.

8. W. B. Saunders Company, Philadelphia, 1919.
9. Paul B. Hoeber, New York, 1920.
10. William Wood & Co., New York, 1920.
11. John Wiley & Sons, New York, 1920.

A Can of

ROYAL
Baking Powder

contains no doubts as to quality, purity or wholesomeness.

Royal Baking Powder is made from cream of tartar, derived from grapes, and has no equal for making healthful, appetizing muffins, biscuits, cake and pastry.

Absolutely Pure

Contains No Alum

Why?

Why do so many hospitals all over the United States and Canada fill their requirements in Absorbent Gauze and Cotton with Curity Brand?

Because—
Curity Quality is Supreme

Lewis Manufacturing Co.

Walpole, Mass.

New York Philadelphia Atlanta Chicago Cleveland Kansas City San Francisco

Flavor as a Means to Adequate Nutrition

Palatability of food induces the partaking of an amount sufficient for proper nutrition.

Hence, flavoring agents are essential constituents of the diet of persons of jaded appetities, especially invalids and convalescents.

SAUER'S
PURE FLAVORING EXTRACTS

stimulate the desire for food to which they are added, so that the maintenance of adequate nutrition is never a matter requiring persuasive measures with the patient.

Various American and European Expositions have awarded seventeen highest awards to Sauer's Extracts for Purity, Strength and Flavor.

Sauer's is the largest selling brand in the United States.

Further particulars free for the asking.

The C. F. Sauer Company

Richmond, Virginia

ALCOHOL AND HEALTH

A summary of the study of the experience of forty-three insurance companies of the effect of alcohol upon health has been presented by Mr. Arthur Hunter, actuary of the New York Life Insurance Company. The study, according to Mr. Hunter, showed conclusively that:

Nothing has been more conclusively proved than that a steady free use of alcoholic beverages, or occasional excess is detrimental to the individual.

Among the men who admitted that they had taken alcohol occasionally to excess in the past, but whose habits were considered satisfactory when they were insured,—*the extra mortality was equivalent to a reduction of over four years in the average life of these men.*

CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission announces an open competitive examination for reconstruction assistants in physiotherapy and occupational therapy September 7, 1920. Entrance salaries are announced as $600 to $950 a year, with quarters, subsistence, and laundry, and a temporary increase of $20 per month granted by Congress.

The subjects, with weights, are (1) physical ability, 10; (2) education, training, and experience, 90.

The announcement specifies the duties of these positions and the requirements for eligibility to appointment.

Applicants must have completed at least eight grades of common school or equivalent education and have had the experience specified in one of the following groups: (a) At least one year's scholastic experience in teaching or working in one of the trades or occupations listed above under occupational therapy. (b) At least one scholastic year's successful teaching of commercial and academic subjects.

NURSES' INSTITUTES ANNOUNCED

The National Organization for Public Health Nursing is planning a series of summer institutes for public health nurses. The tentative schedule for the season is as follows:

Fish Creek, Door County, Wisconsin....July 1 to 15
Hull House, Chicago, Ill.....July 15 to 29

These institutes are to be planned and conducted on an entirely new idea. The nurses are to alternate study and play. The morning hours and part of the afternoon will be given to class work and round table discussion. The remainder of the day will be given over to recreation.

The Educational Committee of the National Organization for Public Health Nursing is planning the outline of study. There will be lectures and round tables on the following subjects: The principals of public health nursing; public health administration programs; sanitary science; and practical application of sociology to family and community needs in relation to nursing.

These institutes are not to be considered a public health nursing course but are instead a series of formal and informal conferences on subjects of practical interest to nurses engaged in public health nursing.

Admission is limited to graduate, registered nurses who have had at least six months experience in practical field work in public health nursing or nurses with a shorter experience supplemented by a regular course approved by the National Organization for Public Health Nursing. The program fee will be $5 payable at the time of registration, which will he on the opening day of each institute.

Is Plenty of Sleep A Waste of Time?

THE day's work is pressing. Every man has about twice as much on hand as he ought to be asked to do.

Few people sleep long enough, or soundly enough. Many begrudge the time the right kind of sleep requires. Others who do get their full night's sleep fail to be benefited by it. They do not properly relax. Their bed squeaks and rattles. They devote the proper length of time to sleep but, somehow, they are restless, disturbed, sleepless—

As a result, they start the day only half rested, are inefficient and dissatisfied with their work and accomplish little. "Sleep" to them becomes "almost a waste of time."

Nobody can sleep deeply and be fully benefited by their sleep unless he or she is completely relaxed—unless the bed *invites* sleep instead of repelling it.

No bed that rattles and squeaks with every turn of the sleeper can be expected to make "sleep" anything else but "a waste of time."

For over forty years Simmons Company has been making beds and springs that *invite* sleep—

Beds that stand true and staunch; that lock firm at the corners, each part rigid, secure and in perfect alignment; beds that are noiseless, comfortable, sanitary, serviceable, and enduring.

Simmons Beds, "*Built for Sleep*" cost no more than perfect beds ought to cost—no more than anybody who values comfort and health will be fully prepared to pay.

The quiet elegance, simplicity and refinement of their design, their superior construction and the certainty with which they encourage sleep, make them essential to the health, comfort and efficiency of the people.

Special Data and descriptive booklets of Simmons Beds for Hospitals, Schools and Outdoor Recreation Camps, will be mailed promptly on request.

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

HYCLORITE

Concentrated Sodium Hypochlorite Solution

ALWAYS READY—Just add water. No time lost—no waste.

RAPID SOLVENT of pus and necrosed tissue. High germicidal power.

Used FULL STRENGTH or DILUTED according to surgeon's need. Successful WITHOUT Carrel technic. Makes correct DAKIN solution in one minute.

Accepted by A. M. A. (N. N. R.)

Sample and literature on request

GENERAL LABORATORIES

4618 Dickinson St.
Madison, Wisconsin

Electrically Lighted Surgical Instruments

Twenty years in the manufacture of electrically lighted surgical instruments, if it has not brought perfection in instrument construction, at least has kept the Electro Surgical Instrument Company abreast of the advances made by leading specialists of the medical and surgical profession.

So it is that instruments stamped "E. S. I. Co." speak of the accomplishments of the noted men whose suggestions are embodied in their construction and a service of maintenance possible only in instruments of our manufacture.

Users of instruments stamped "E. S. I. Co." are certain sharers in this service.

Origination begets imitation. Be sure of our exact name.

Illustrated Catalogue Sent Upon Request

ELECTRO SURGICAL INSTRUMENT COMPANY

Rochester, N. Y.

STATE AND TERRITORIAL HEALTH OFFICERS CONFERENCE

The annual conference of the State and Territorial Health Officers with the United States Public Health Service was held in Washington May 26 and 27. A number of interesting resolutions were adopted, among them being an approval of the standard railway code of sanitation recently issued by a special committee, a recommendation against the creation of duplicate boards as provided in federal bills for maternity care, recommendation for federal supervision for maternity and infant care, and a special recommendation for measures to improve rural health.

PSYCHIATRIC SOCIAL WORKERS WANTED

To aid the United States Public Health Service in a national campaign for volunteers to be trained as psychiatric social workers among the 50,000 World War veterans suffering from nervous and mental diseases, the American Red Cross is offering summer school courses, on a scholarship if necessary. Positions are open in the fall to qualified candidates at salaries ranging from $1,500 to $2,100 a year. Smith College, the New York School for Social Work, and the Chicago School of Civics and Philanthropy provide the courses and will receive Red Cross students.

TUBERCULOSIS RESEARCH FELLOWSHIP

To encourage study of the means for the prevention and cure of tuberculosis, the Hennepin County Tuberculosis Association of Minneapolis, Minn., announces that it has set aside a fund for the support of a tuberculosis research fellowship in the Graduate School of the University of Minnesota. The candidate for the fellowship will be expected to devote himself to research in some problem concerned with the causes, prevention, or cure of tuberculosis. No teaching or other service will be required. The fellowship yields $750 the first year and progressively increasing amounts to be appropriated for the second and third years as conditions warrant. Inquiries and requests for application blanks should be addressed to the Dean of the Graduate College, University of Minnesota, Minneapolis, Minn.

INACCURATE CLINICAL THERMOMETERS

A campaign has been begun by Dr. Frank J. Monaghan, acting commissioner of health, New York City, to drive out of use inaccurate clinical thermometers. Numerous complaints regarding defective thermometers in use by doctors and nurses having been received, an investigation was ordered. As a result of the investigation, it is proposed that the sale and manufacture of clinical thermometers be placed under the jurisdiction of the Health Department. The investigation covered manufacturers and also the thermometers in use by physicians and nurses. While most of the manufacturers are found to be exercising greatest care in testing thermometers, there were some who did not exercise such care. A large number of thermometers were found to be so inaccurate as to constitute a menace to the health of the patient. The report expressed the opinion that if regulations were adopted in New York to prevent the sale of defective clinical thermometers, Federal laws would also be required to prevent the marketing of rejected thermometers elsewhere.

LEDERLE ANTITOXIN LABORATORIES

Hay Fever Prophylaxis

The uniform stability and antigenic activity of the product employed is of utmost importance

Pollen Antigen
Lederle

is so prepared that it's antigenic activity is accurately determined and so preserved that it's stability is assured

Complete Data Upon Request

Lederle Antitoxin Laboratories
511 Fifth Avenue, New York.

COLLECTING POLLEN FROM FLOWERING PLANTS
Lederle Antitoxin Laboratories

The Cost of Calories

6,221 calories
35 cents

A large package of Quaker Oats contains 6221 calories. It will make 60 dishes. And it costs 5½ cents per 1,000 calories.

On the calory basis, meats, eggs, fish, etc., cost nine or ten times as much.

500 calories
30 cents

One chop costs as much as 12 dishes Quaker Oats. One egg would buy several dishes.

Yet the oat is almost the ideal food. In balance and completeness it's the greatest food that grows.

700 calories
35 cents

A Quaker Oats breakfast means better feeding. And it means a saving which will help buy costlier foods for dinner.

Note how other good foods compare in cost, at this writing, on the calory basis:

Cost per 1,000 calories	
Quaker Oats	5½c
Average Meats	45c
Hen's Eggs	60c
Chicken up to	$1.66

Quaker Oats

Made to make the oat dish doubly delightful. Flaked from queen grains only—just the rich, plump, flavory oats. We get but ten pounds from a bushel, yet it costs no extra price.

The Quaker Oats Company

Chicago

SURGEONS ELECT OFFICERS

At the forty-first annual meeting of the American Surgical Association held in St. Louis May 3 to 5, under the presidency of Dr. George E. Brewer, the following officers were elected: President, Dr. John B. Roberts, Philadelphia; vice-presidents, Drs. Harvey G. Mudd, St. Louis, and James F. Mitchell, Washington, D. C.; secretary, Dr. John H. Gibbon, Philadelphia (reelected); treasurer, Dr. Charles H. Pack, New York City; and recorder, Dr. John H. Jopson, Philadelphia (reelected).

AMERICAN ASSOCIATION OF ANESTHETISTS

At their annual meeting in New Orleans in May the American Association of Anesthetists registered in unmistakable terms their disapproval of the employment as anesthetists of any but men and women licensed to practice medicine or dentistry. They elected the following officers: Dr. Joseph E. Lumbard, New York City, president; Drs. Frank L. Richardson, Boston, and Eleanor C. Seymour, Los Angeles, vice-presidents; and Dr. F. Hoeffer McMechan, Avon Lake, O., secretary-treasurer.

RESEARCH IN MENTAL DISEASES

The New York Neurological Society has undertaken to foster research in nervous and mental diseases through an association recently formed which purposes the investigation by a properly constituted commission of subjects assigned three years in advance of their annual meetings, only one subject to be discussed at a meeting. The first meeting will be held in New York in December, 1920. Dr. Walter Timme, New York City, is chairman of the Organization Committee. Dr. Frederick Tilney, New York City, has charge of the Committee on Arrangements for the first annual meeting.

THE NATIONAL RESEARCH COUNCIL

The National Research Council, a cooperative organization for the application of scientific knowledge for the benefit of national welfare, has elected the following officers for the year beginning June 1, 1920: Chairman, H. A. Bumstead, professor of physics and director of the Sloane physical laboratory, Yale University; first vice-chairman, C. D. Walcott, president of the National Academy of Sciences and secretary of the Smithsonian Institution; second vice-chairman, Gano Dunn, president of the J. G. White Engineering Corporation, New York; third vice-chairman, R. A. Millikan, professor of physics, University of Chicago; permanent secretary, Vernon Kellogg, professor of biology, Stanford University; treasurer, F. L. Ransome, treasurer of the National Academy of Sciences.

The Council was organized in 1916 under the auspices of the National Academy of Sciences to mobilize the scientific resources of America for work on war problems, and reorganized in 1918 by an executive order of the President on a permanent peace-time basis. Although cooperating with various government scientific bureaus it is not controlled or supported by the government. It has recently received an endowment of $5,000,000 from the Carnegie Corporation, part of which is to be expended for the erection of a suitable building in Washington for the joint use of the Council and the National Academy of Sciences. Other gifts have been made to it for the carrying out of specific scientific researches under its direction.

Gradwohl Laboratories

Chicago—7 W. Madison St.
St. Louis—927 N. Grand Ave.

are especially equipped to satisfy the needs of

Industrial Surgeons

By reason of well equipped laboratories and skilled workers we are prepared to handle all your problems in this line.

Every Wassermann is supplemented by a Hecht Gradwohl Blood Test which adds ***thirty per cent*** to the column of correct positives.

Our blood chemical methods are accepted everywhere as standard.

Sanitary Water Analyses

Medicolegal Problems of all kinds.

Consult us freely. Literature and containers Free on Demand.

Let us assist in the great work of INDUSTRIAL MEDICINE.

Cleans **COFFEE POTS** and **URNS** quickly and thoroughly, making them as good as new.

Cleans **URN SACKS** thoroughly, taking out all the Coffee odors.

DO NOT USE SOAP when cleaning metals with the solvent. The ideal way to clean metal surfaces, and avoid injury, as well as save labor, is to use a cleaner that will loosen the dirt and grease without harm to the hands.

ARISTON MAGIC SOLVENT will meet every requirement for perfect cleaning with the least effort and positive assurance of no injury. One spoonful to pail of water is plenty for general use.

A 5-pound carton will last a long time.

Send us a dollar and we will ship you a 5-lb. carton. It is not packed in larger size, as the solvent should be used sparingly.

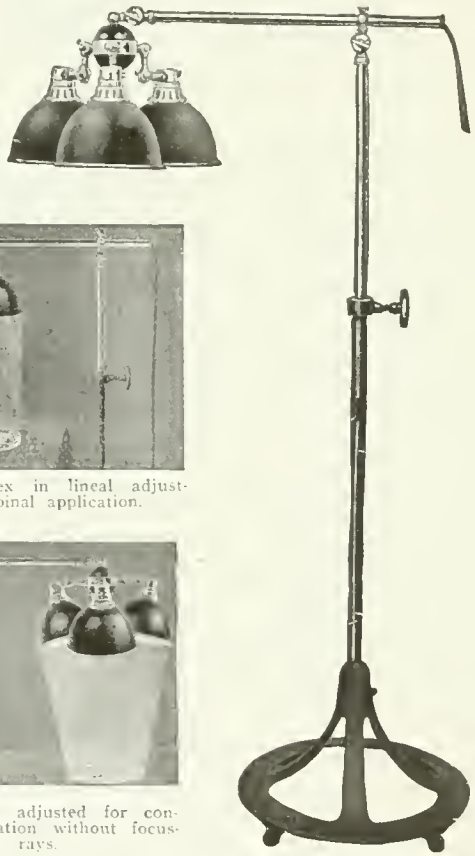
CALUMET TEA & COFFEE COMPANY

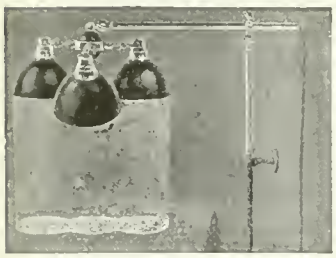
409-411 W. Huron St., Chicago, Ill.

"Dealers Direct with You"

Thermolite
LIGHT AND HEAT INFUSER

TO RELIEVE pain and speed recovery of workmen in every industrial and public health station the THERMOLITE is a most essential apparatus. Radiant light and heat delivered in parallel rays have deep penetration and bring quick relief from pain, reduce inflammation and promote healing quicker and better than drugs or local applications in many conditions encountered daily by industrial physicians.





Showing Triplex in lineal adjustment for spinal application.

Showing Triplex adjusted for concentrated application without focusing rays.

Most therapeutic lamps designed for industrial purposes have but a single large reflector, with a high powered lamp in the center. This does not permit much adjustment in the intensity or illuminating area in front of the reflector, whereas with the THERMOLITE (Triplex Type) the light can be projected in a curved or straight line, concentrated or diffused, to any degree, and all without focusing the rays. It can be attached to any electric light socket.

THERMOLITE is supplied in two forms, the Triplex for hospital clinics and office use, and Simplex (single lamp with or without stand) for home use.

Send for prices and free book "Phototherapy."

H. G. McFaddin & Co.

39 Warren St., New York City

PREVALENCE OF SPEECH DEFECTS

That speech defects are more widely prevalent than is generally appreciated is the opinion of the National Society for the Study and Correction of Speech Disorders as expressed in a recent official statement that 1,500,000 cases in the United States are a conservative estimate, the cases probably actually numbering around three million in all. The Society has 839 members, practically all of whom are actively correcting speech disorders and pushing ing the mental hygiene and mental development of those found defective.

THE JEWS AN URBAN RACE

The total Jewish population of the United States is estimated to be 3,300,000, of which number one and one-half million are in the city of New York, according to the Twelfth Annual Report, just issued, of the American Jewish Committee. Of the total Jewish population 75 per cent is concentrated in ten cities, namely, New York, Chicago, Philadelphia, Cleveland, Boston, Baltimore, St. Louis, Pittsburgh, Newark, and Detroit. There is also a direct relationship between the general population of cities and the Jewish population, the Jewish population rising as the general population is greater. In the nine largest cities, excluding New York, which is exceptional, the percentage of the Jewish to the general population is about 10 per cent; in the sixty-two next largest cities, those having a population of 100,000 or over, the average is a little less than 4.5 per cent; in cities between 50,000 and 100,000 the average ratio is 3 per cent.

THE SCIENTIFIC USE OF STATISTICS

An editorial in the *Public Health Nurse* for May, 1920, discusses the scientific use of statistics from the standpoint of the public health nurse and argues for the wider use of statistics in the promotion of health. To quote part of the editorial:

To many public health nurses the keeping of statistics is an irksome matter, of very small importance compared with their actual nursing work. To spend on the writing of records time which might be devoted to the help of the sick seems to them unreasonable. And so it certainly is, unless the records so kept are such that they may be made of real use. This is a point in regard to which each nurse should surely satisfy herself, by studying the why and wherefore of the records she keeps and ascertaining to what uses they are put or are capable of being put. To relieve suffering and help to restore the sick to health is greatly worth while; but so to make use of the history of sickness that it may be utilized to prevent further suffering is also of much value. And who has a better opportunity than the public health nurse for "the comprehensive study of *the facts as they are* in daily life and environment and not only as they are in the laboratory"?

In the same issue of the magazine an excellent article appears on "Florence Nightingale as a Statistician," by Dr. Edwin W. Kopf. Referring to the article in question the editorial goes on to state:

Florence Nightingale saw in the careful collection, presentation, and, above all, scientific *use* of statistics the foundation of sound health measures, anticipating in this as in so many other ways, the conception of our own day, and giving one more demonstration of the truth that a right principle, once apprehended, is equally applicable in all ages.

Professorship in Anesthesia

The first professorship in anesthesia to be created in the United States has been accorded Dr. S. Griffith Davis recently by the University of Maryland.

ACUTE SUMMER DIARRHOEA

The doctor found John Bignell, 5½ months old, apparently suffering from intestinal tuberculosis; periodical sickness and diarrhoea prevailed; unable to assimilate food.

Improvement immediately followed the use of VIROL in small doses, mixed with whey; child out of danger in one month. Second photo taken six months after first.

DIET IN INFANTILE DIARRHOEA

To each half pint of barley water or rice water add a half teaspoonful of VIROL and give one or two ounces of the mixture every two hours.

Virol is composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine: refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars: 50c, $1.00 and $2.00

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

The addition of VIROL under suitable conditions enormously stimulates the phagocytic powers of the white blood cells. These sturdily attack the microbial invaders, and by diminishing the intestinal flora cut off the production of toxins at their source, with a consequent reduction of the catarrhal condition of the mucous membrane.

As the glandular secretions become more normal they again exercise their inhibitory effects upon the flora, and digestion and assimilation are again established.

Virol

More than 2,000 Hospitals and Infant Welfare Societies use VIROL in Great Britain

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

ICHTHYOL

MERCK

Genuine ICHTHYOL is obtainable only in bottles or tubes under the Merck seal

Anusol
HEMORRHOIDAL
Suppositories

Do not think of Anusol Suppositories only in connection with Hemorrhoids.

All inflammatory conditions of the Anus, Rectum and contiguous organs can be benefited by their use.

Conscientious use, of course.

Absolutely innocuous.

Composition on label.

Sample on request.

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX
WHITE, RED AND BLACK LABEL
AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

REPORT ON DRUG ADDICTION

A recent report of the experience of the New York City Narcotic Clinic, prepared by S. Dana Hubbard, M.D., of the Bureau of Public Health Education, has been issued as a reprint. This report gives the different points of view on the subject of drug addiction. The report points out significantly that "the problem of drug addiction is somewhat to be compared with village gossip—but few know the actual facts—and it is extremely interesting to find how many peculiar and extravagant opinions are expressed regarding this mystery. This is very applicable to the facts regarding drug habits." The conclusions of the report are briefly:

Number of addicts.—The estimate of 1 per cent of our population addicted to the use of narcotic drug indulgence as a habit—addiction—is very likely greatly exaggerated.

Class of addicts.—Instead of many persons being made narrotic drug users incident to improper prescribing by careless doctors, it is found that drug addiction spreads like a pestilence through association. In a study of more than 7,500 addicts in this city exemptions requested for persons ill of some malady numbered less than 250.

Physical condition of addicts.—Instead of drug addicts being of that thin, emaciated, starved, hollow-eyed, cadaverous type of individual, very many appear physically normal.

Feeble-mindedness of addicts.—Very many of these unfortunates are easily determined as belonging to this group in one of its several degrees. Some are, however, of the constitutionally inferior type and many of these are of the underworld stripe. The mental condition of addicts adds impetus to the opinion that more recognition must be given in our schools to the boy or girl of the mentally inferior type so that by special attention and training—oftentimes individual—many may be prevented from the acquirement of such a vicious habit.

Duration of habit.—From our experience, few seem to continue the habit for a very long period. The vast majority of these cases seem to be under ten years and there are comparatively few longer than this period.

Acquirement of habit.—This appears to vary with localities. Our experience points in the great preponderance of instances to bad and vicious associates, 69 per cent from their own statements. Raising the morale of our public assemblies for the young and making programs in our shops and factories may materially aid in preventing this reprehensible practice.

Efforts to prevent and avoid mental and physical fatigue in industry with a careful regard for opportunities for acquirements of this habit by the industrially employed is strongly indicated.

Results of habit.—The practices of drug addicts to meet the demands of their depraved appetites causes financial embarrassment, and to meet these desires the addicts become immoral and anti-social. When in need of the drug or over-stimulated from indulgence, all moral influence and self-control are lost. These individuals either in need of the drug or under its stimulating influence are a distinct menace to society. They will commit the most revolting of crimes in cold blood. It is from the ranks of these that petty thieves are recruited.

Treatment.—Drug addiction is not a mysterious disease. From a purely scientific point of view it would be interesting to have more light on the problem of tolerance, but on therapeutic indications and possibilities there is but little difference of opinion. Drug addicts, under careful medical and supervisory nursing, present no pathological condition—only a disturbed or prevented functioning. The action of internal organs are inhibited or functionally disturbed; but, when these influences are removed and normal action permitted this derangement quickly disappears.

It is our opinion that any form of cure can take an addict off his drug provided this is done promptly. This was done at Riverside Hospital, in three to five days, without discomfort to the patient. From information obtained from the large number of addicts who have come to our clinic, most of whom have taken various methods of

(Continued on page 86)

The Modern Idea in
Artificial Feeding of Infants

Mead's Dextri-Maltose
is prepared
in Three Forms
No. 1. With Sodium Chloride, 2%.
(For average baby.)
No. 2. Unsalted or plain.
(For the physician who wishes to add larger amounts of salt.)
No. 3. With Potassium Carbonate, 2%.
(For the constipated baby.)

Mead's Dry Malt Soup Stock
is prepared especially for the marasmic type of baby. Such cases generally thrive astonishingly well on Dry Malt Soup (a mixture of cow's milk, maltose, dextrin, wheat flour and potassium carbonate).

Human milk is the best baby food and cow's milk, intelligently and properly modified, is the best available substitute.

Proper modification involves the addition of sugar and food salts which Mead's Dextri-Maltose supplies in forms suited to different feeding conditions.

Individual infants differ so greatly in food requirements and food tolerance that no standard feeding mixture can be employed, but each case must be fed according to its own needs.

These needs can only be determined by a physician. *Hence our adoption of*

THE MEAD JOHNSON POLICY
Mead's Dextri-Maltose is advertised only to the Medical Profession. No feeding directions accompany trade packages. Information regarding its use reaches the mother only by written instructions from her doctor on his own private prescription blank.

Write us for interesting literature explaining our policy and our methods. Our key for preparing individual formulas will interest you.

MEAD JOHNSON & CO., 304 St. Joseph Avenue, Evansville, Ind.

Physical Conditioning

So many patients, especially women, lack the initiative to follow general advice regarding exercises, dietary, and personal hygiene. Physicians acquainted with my work are constantly referring these cases to me for physical and mental "conditioning."

A woman can often inspire her sex *to be* and *to do* and *hold her to this inspiration* by regular correspondence as men cannot.

Every pupil's requirements are studied individually, and each is directed according to her needs and her strength.

This cooperative work with the medical profession is giving results highly gratifying to both physicians and patients.

I shall be glad to assist you with patients who need conditioning through exercise, diet, breathing, correct poise, relaxation, reduction of flesh, or building of flesh.

Susanna Cocroft

624 Michigan Boulevard Chicago

Boon to Industry

50 to 80% of American young women suffer from dysmenorrhea. There is scarcely a factory, store, office, school or home that is not interfered with on account of young women being seriously affected fourteen times yearly. Every physician in charge of the health of women industrial workers recognizes the great economic loss to industry by absenteeism and reduced production. Painful menstruation is the most frequent cause.

Benzyl Benzoate, a harmless, non-toxic, non-narcotic, antispasmodic relieves over 80% of all cases of dysmenorrhea, proving a great economic asset and greatly reducing human suffering.

Since the commercial Benzyl Benzoate is unfit for therapeutic use on account of producing gastric irritation, it is important to specify the product of The American Chemical Laboratories to insure a chemically pure preparation.

We Commend Bénol—our standardized emulsion, as the best form for administering this valuable drug.

Brochure and sample sent upon request.

H. K. Mulford
PRESIDENT
A PRODUCT OF THE
AMERICAN CHEMICAL LABORATORIES
PHILADELPHIA, U.S.A.

The Standard for Twenty Years

Carnation Milk, because of its uniformly high quality and absolute purity, has found wide favor throughout the country.

It is just cows' milk from which a part of the natural water content has been removed by evaporation, hermetically sealed in new containers and then sterilized.

The use of Carnation Milk in the diet kitchen is steadily increasing due to the fact that its convenience, economy and purity are appreciated.

CARNATION MILK PRODUCTS COMPANY
734 CONSUMERS BUILDING, CHICAGO
734 STUART BUILDING, SEATTLE

Carnation Milk

"From Contented Cows"

Sold by Grocers Everywhere

The label is red and white

our cure, it may be concluded that all methods of withdrawal are equally efficacious and only differ in regard to the comfort of the addict while taking the cure. Aftercare is always essential.

Treatment of the narcotic drug addict by private physcians prescribing and druggists dispensing, while the individual is going about, is wrong. The giving of a narcotic drug into the possession of an addict for self-administration should be forbidden. Until this is done by law all honorable physicians should aid in stopping this vicious practice. The case of drug addiction that can be cured by ambulatory treatment is the rare exception, and so unusual as to make one think it impossible. Physicians generally are of the opinion that ambulatory treatment is not good practice, and few doctors use this form of treating addicts, it is believed that those so doing must be either ignorant of proper methods, or do so in bad faith.

Harrison Act enforcement.—Our study of this problem in this city indicates most positively the necessity for the general and uniform enforcement of the statutes. There will be no panic or falling in the streets, or robbing of drug stores or crowding of physician's offices by the addicts affected. If they cannot obtain a supply, they will reform, and it is certain that not a fatality will be recorded.

General conclusion.—The work of reclaiming the narcotic drug addict, in this vicinity at least,—judging from those we have seen and helped,—is more than worth while.

COURSE IN PUBLIC MENTAL HEALTH

A special course in Public Mental Health is offered by the Division of the Criminologist of the Illinois Department of Public Welfare in cooperation with the Chicago School of Civics and Philanthropy in Chicago June 21 to December 18, 1920. The work will be divided into two main periods, June 21 to September 7, during which time the work will consist of alternating class room instruction and field work. The second period, September 7 to December 18, will be devoted to field work in one or more of the state institutions. Thesis work may be included with the necessary supervision of statistical work.

HEALTH OF MILLINERY WORKERS

A report of conditions affecting health in the millinery industry was recently made by Dr. S. Dana Hubbard and Christine R. Kefauver of the Division of Industrial Hygiene, Department of Health, City of New York. This report of thirty-five pages summarizes briefly the health hazards in the industries related to the manufacture of millinery. Among other hazardous branches of the trade is that of artificial flower making, which, the Report states, carries the greatest menace to the health of the worker. This industry requires the use of numerous chemicals, many dangerous machines, and also materials which affect the health of workers.

INTERNATIONAL MEDICAL CONFERENCE

Dr. Simon Flexner, director of the Rockefeller Institute, represented America at the first formal meeting of the Medical Advisory Board of the League of Red Cross Societies.

Representatives from other countries who attended the international conference in July are: Belgium, Professor Brodet; Denmark, Professor Madsen; France, Professor Roux, Professor Albert Calmette, and Dr. Leon Bernard; Great Britain, General Lyle Cummins, Sir Walter Fletcher, and Sir George Newman; Italy, Professor Bastianella and Dr. Castellani; Japan, Dr. Kinnostke Miura; South America, Dr. Chagas.

Arsenic and Mercury are Indispensable in the Treatment of Syphilis

We recommend

SALVARSAN or NEOSALVARSAN

(Arsphenamine-Metz) (Neoarsphenamine-Metz)

powerful and easily administered spirochetecides, which are as efficacious as the imported products,

and

BICHLORIDOL or SALICIDOL

(Mercury Bichloride) (Mercury Salicylate)

put up in **COLLAPSULES** (compressible ampules), which insure absolute accuracy of dosage with absence of pain after intramuscular injection.

This combination of anti-luetics has no superior in the therapeutic field. Literature upon application to

H. A. METZ LABORATORIES, Inc.

122 HUDSON STREET,
NEW YORK

Low Alveolar CO_2 Tension
Low Alkali Reserve
High Hydrogen-ion Acidity of Blood
High Hydrogen-ion Acidity of Urine
Acetone Bodies in the Urine
Air Hunger

CALL for ALKALI

Kalak Water Company
23 City Hall Place, New York

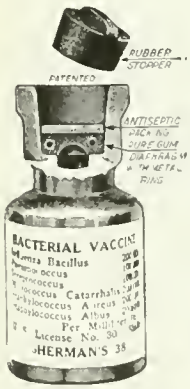
Supply this need and fortify your other medication by prescribing KALAK WATER for your patient.

Notice

SHERMAN'S VACCINES

Are now supplied in a new 10 mil. (C. C.) container

This package has many superior features which assure asepsis, prevent leakage and faciliate the removal of contents. It is constructed on the well known Sherman principle.



10 Mil. (c.c.)

Twenty Preparations.

Beyond the experimental stage.

Millions of doses have been administered.

The vial is amply strong which prevents breakage so frequent with shell vials.

We are exclusive and pioneer producers of Bacterial Vaccines. Originators of the aseptic bulk package. Pioneer in elucidation, experimentation and clinical demonstration.

The largest producers of Stock and Autogenous Bacterial Vaccines.

MANUFACTURER OF BACTERIAL VACCINES
G. H. SHERMAN, M.D.
Detroit, Mich. U.S.A.

"Sherman's Vaccines are dependable Antigens."

LEGAL CONTROL OF GLANDULAR PRODUCTS

At a session of the Section of Medicine of the New York State Medical Society during the recent meeting held in New York City, Dr. S. W. Bandler suggested the wisdom of legal control of the sale of glandular products for life extension or other purposes. He urged the appointment of a committee of fourteen physicians to take the initiative in the matter of the prevention, by legislation, of the sale of such products by druggists without a physician's prescription.

REGULATION OF INDUSTRIAL NURSING

It is reported that the State Board of Health of Rhode Island has sent a letter to all industrial plants in the state employing industrial nurses defining the limitations of duties of such nurses. They state that the reason for the action was that the Board's attention had been called to certain instances where manufacturers require nurses in their establishments to do certain things that infringe on the medical practice laws of the state.

ILLUMINATION AND PRODUCTION

Production is handicapped to a striking degree by poor illumination in factories, according to a statement by Ward Harrison, illuminating engineer, Cleveland, O., in an address before the Taylor Society at Rochester on "The Necessity for Standards in the Relation Between Illumination and Output." Mr. Harrison declared that most industries are saving one dollar by not improving illumination and losing ten dollars through decreased production. Study has proved, he says, that night shifts are inefficient partly because of inadequate lighting.

Y. W. C. A. HOLDS NURSES' COUNCIL

The Young Women's Christian Association, in connection with its regular summer camp conference, is including a Nurses' Council at Lake Okoboji, Iowa, from August 7 to 14, 1920. Student nurses, hospital nurses, and public health nurses are eligible as members of this conference.

A competent athletic director and a swimming teacher and life guard will take care of games, boating, swimming, hiking, giving instruction as well as directing sports. Picnics, parties and pageants will be the part of the program that each group will organize for themselves.

For information address Miss Winnifred Wygal, 425 Northwestern National Life Building, Minneapolis, Minn.

Ohio Public Health Organization

A new association was organized at Columbus, O., May 12, to be known as the Ohio Public Health Association, and the following officers were elected. President, Dr. Chester B. Bliss, M.D., Sandusky; vice-presidents, Dr. lucian G. Locke, Portsmouth, and Mrs. W. C. Marshall, Selma; secretary, Dr. Robert G. Patterson, Columbus; and treasurer, Mr. Theodore S. Hunter, Columbus.

Endowment for Psychiatric Clinic

The founder of the Phipps Psychiatric Clinic, Henry Phipps, New York, has made a gift of $100,000 as a nucleus of a permanent endowment for the Clinic. Heretofore the Clinic has been supported by a maintenance fund provided for a period of ten years by Mr. Phipps.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2. AUGUST 1920 Number 8

GENERAL WILLIAM C. GORGAS

IN THE passing of General William C. Gorgas the United States has lost one of its greatest men, one who, because of the immense benefits his labors conferred upon mankind, deserves a lasting memory and the highest honor. Born in Mobile, Ala., in 1854, the son of a West Point graduate, he received his early education at the University of the South, Sewanee, Tenn., of which institution his father became president. He came North in the seventies to pursue his medical education at Bellevue Medical College. Following his course in the hospital there he received a doctor's commission as lieutenant in the Army and was sent to Fort Brown, Tex., at which post his conflict with yellow fever aroused in him an interest in the malady which later on was to be practically eliminated by his efforts.

His remarkable talent as an executive sanitarian was first revealed during the Spanish War. He accompanied the Army in the Santiago expedition and was put in charge of the yellow fever wards of the Las Animas Hospital in Havana. The discovery of the mosquito as the intermediate host in the transmission of this disease was utilized by General Gorgas in his effectual campaign in "cleaning up" the Havana capital.

This work brought him general attention and in 1905, when it became necessary to make healthful the area surrounding the workers on the Panama Canal, he was chosen by the Government to eradicate the twin scourges, malaria and yellow fever, and the success of his work made possible the notable engineering achievement of General Goethals. The views of General Gorgas as to so-called ineradicable tropical disease are expressed in his own words thus:

"I dare to predict that after a lapse of a period, let us say equal to that which now separates the year 1909 from the Norman conquest of England, localities in the tropics will be the centers of as powerful and as cultured a white civilization as that which now exists in the temperate zone."

There was nothing spectacular in his conquest of tropical diseases in the Panama region. In silent laboratories with chemical formulae, in stagnant pools and dismal swamps with ash can, larvacides, and fumigants, the war was waged against yellow fever until the death rate of the Isthmus from this disease was reduced in five years from eight thousand to a paltry nineteen.

At the instance of the British Government he was sent in 1913 to investigate conditions in the Rand mines of South Africa, where epidemics of pneumonia were carrying off thousands of Kaffirs. On his return in 1914, having served in Panama as a Colonel and as Assistant Surgeon General, he was promoted to the rank of Surgeon General, and later was made a Major General. In 1915 also he became a permanent director of the International Health Board of the Rockefeller Institute, and his last great work against yellow fever in its stronghold, Guayaquil, in the tropics under the auspices of that body, was a complete success.

General Gorgas served as head of the Medical Corps during the recent war and achieved for our Army the distinction of a mortality rate of six-tenths of one per cent, lower than that on the basis of which claim had been made that the Japanese army was the model of hygiene in all military history.

Among the many honors conferred upon General Gorgas may be mentioned the gold medal of the American Museum of Safety, the Mary Kingsley Medal from the Liverpool School of Tropical

Gen. William C. Gorgas.

Medicine, and the Presidency of the American Medical Association in 1908. He was a member of several other medical organizations and a United States delegate to the first Pan-American Medical Congress in Santiago, Chile, in 1908. During his recent visit to Milbank Hospital, London, King George of England bestowed upon General Gorgas the insignia of Knight Commander of the Order of St. Michael and St. George, in recognition of his services to Great Britain and the rest of the world.

Public Health physicians and sanitarians everywhere will feel humble in the presence of such achievements and such high objectives, but will receive a new incentive to carry on the work achieved at such personal cost, and will realize that nothing shall stand in the way of improvement when science is linked with such service as this.

REFORM FROM WITHIN OR WITHOUT?

AS a people we are inclined to place too great a reliance on the general rightness of things and to proceed without thought or question on the assumption that evolution toward a better social order is predetermined, and that time will take care of and eliminate any faults or false starts that may be charged to the present.

It is true that when reforms are reviewed with a proper perspective the manner in which apparently conflicting tendencies fall into harmony points to the planning of human affairs by an architectonic mind and leads to the conclusion that laws of being we are not even aware of are constantly operative and, no matter how erratic the ways of individual action or how false individual judgment, there is never at any time any great deviation one way or the other.

This, however, is not to be construed as a release from the dictum that "right conduct is thought-out conduct," and certainly the scientific mind is bound to base its prerogative upon observed facts and to found its attitudes upon reason rather than upon selfish or emotional reactions. Evasions, substitutions, or denial of facts have no place in the scientist's code.

All of this is pertinent to issues now before the medical profession. Discussions regarding the reorganization of medicine range from apathy or scorning aloofness on the one side to acrimonious and unreasoning opposition on the other. Opposition to change is of course not without its element of self-interest on the part of those who would suffer financial loss from any system of universal supervision of health matters, and there is a measure of justifiable caution in efforts to prevent a possible exploitation of medicine with its consequent lowering of standards. The time is upon us, however, when all thinking members of the medical profession must recognize that change is imminent, indeed that it is imperative. The public is at last interested in its welfare and must be guided to self-help. Science is not for the esoteric, but must be made to serve popular needs and demands.

Health facts as revealed by the Army draft and by such extensive surveys as have in the past few years been made in Ohio, Illinois, Pennsylvania, Massachusetts, and, more recently, in New York, constitute a basis for constructive thought in this direction. Numerous expedients in the way of group practice, and community and hospital health centers now being tried out should be measured most carefully as to their efficacy and adaptability.

To such an end we present on another page of this issue of MODERN MEDICINE the annual discourse of Dr. Hugh Cabot before the Massachusetts Medical Society June 9, 1920, as an example of the constructive criticism which tends to keep the initiative of reform in the hands of those best fitted by training and habit of mind to fill this difficult rôle of reformers from within. S.P.M.

COMPULSORY HEALTH INSURANCE, STATE MEDICINE, OR WHAT?*

By HUGH CABOT, M.D., F.A.C.S., Ann Arbor, Mich.

IT has perhaps been a weakness of the medical profession that it has not sufficiently exerted its great potential influence in directing or influencing the changes in the relation of medical practice and medical custom to the community. We have on the whole been too apt to regard such things as other people's business and have held the view that the care and management of the sick constituted our whole relation to the community. But it must now be perfectly clear that with the variety of suggested cures for the real or imaginary evils which are believed to surround the practice of medicine we must think clearly and act together and wisely if we are to prevent various developments which we believe to be unsuited to the requirements. Change is in the air. A demand for a closer relation between the public and its health agencies is widespread and proper. Democracy cannot hope to satisfy the claims of its admirers unless it can show success in protecting itself against the diseases of body and mind with which it is threatened.

PUBLIC HEALTH OBJECTIVES

The problem of the complete care of community health becomes a social problem. The means of achieving this service is through a well thought out plan based upon data obtained through experimental health centers, the authority back of such health administration being an enlightened public opinion that knows what it wants and insists upon getting it.

Given these conditions, selfish class opposition on the one side would be as ineffectual as lack of cooperation because of ignorance on the other, and the greatest good for the greatest number would eventually be achieved.

Society Gives Derelicts Best Care

The present demand for change of some kind has its source in a variety of conditions. Perhaps the most fundamental is a dissatisfaction with private charity as a method of caring for the ills of those who are unable to pay for satisfactory care. The system by which we have provided almost the best skill that the community can afford for the care of the paupers and the derelicts of society has been outgrown. The self-respecting though impecunious citizen demands and has a right to expect that he can obtain care at least equal to the average of medical knowledge without being driven into debt or bankruptcy. Undoubtedly the almost universal adoption of compensation for industrial accidents has started people thinking and they properly inquire why, if they are entitled to protection from accident chargeable against the business in which they are concerned, they are not entitled to insurance against illness chargeable to the same source. Compulsory health insurance was long ago instituted in Germany and not so long ago the so-called "panel system" of health insurance was put into effect in England. Many people, and particularly those dissatisfied with present conditions, have heard of these alleged panaceas and believe that they know about them, though they are far more apt to hear of their excellencies than of their deficiencies; and, finally the widespread demand for protection against illness is part and parcel of the general restlessness or unsettled conditions and the very human though utterly hopeless desire to get something for nothing.

Compulsory Health Insurance

It does not seem essential to enter into any lengthy dissertation here on the much discussed and widely advocated system of health insurance. We are familiar with the claims made by enthusiastic advocates and most of us have come to an opinion in regard to the propriety of such an arrangement. But in order that no doubt may exist as to my own opinion I will briefly note what seem to me overwhelming objections to the system.

In the first place, as at present advocated in the various bills which are before the many state legislatures of the country, it does not, as far as I am aware, even propose to insure or to care for the illness of the majority of the population. It is not suggested that any of the systems advocated will have any effect in the prevention of disease or in the diminution of its incidence, and yet the casual minded are rather led to believe that in some mysterious fashion such a result will accrue. It is not proposed, as far as I am aware, to apply this system to all members of the community who are or believe themselves to be financially unable to obtain satisfactory medical attention. It is pro-

*The Annual Discourse, delivered before the Massachusetts Medical Society, June 9, 1920. Reprinted by courtesy of Dr. Cabot and the Boston Medical and Surgical Journal.

posed to apply it only to workers in industrial concerns where it can be charged against the cost of the business and thus become a tax upon the community which may be borne without being unduly burdensome. Furthermore, as far as I can judge from the experiments in other countries—and the experiments in England appear very enlightening for us—the whole tendency of this method is to promote second rate methods of practice. The fees which the physicians doing this work can be allowed to charge are of necessity low, and this tends to attract chiefly physicians of average or less than average capacity.

A more serious objection is that it tends to promote what may be called the method of "pill peddling" in medical practice. It tends to perpetuate the methods of one or two generations ago under which the physician made numerous visits but, being unequipped with the machinery for precise diagnosis, as a rule contented himself with treating symptoms and trusting to the healing powers of Nature. The last twenty years has seen a great effort to get away from this inefficient method, yet now we are asked to saddle ourselves with a system which is as sure as anything to restore to respectability this fast disappearing practice. As part and parcel of this same difficulty, health insurance does not assume to provide and probably will in practice discourage the tendency to send patients to a hospital where they can be studied with the best results to themselves and the least expenditure of unnecessary time and exertion by the physician. For these reasons it appears to me certain to promote a method of practice unlikely to promote health or to shorten the loss of time from disease.

Another prime consideration is its effect upon the medical profession who give their lives to it. It has been sometimes argued that this and various other methods would tend to make medicine an unattractive calling. From the point of view of the medical practitioner this is a valid objection. From the point of the community, on the other hand, the medical profession can have no rights which the public is bound to respect to its own disadvantage. If it could be shown, which I think it cannot, that this or some other system would promote health, the medical profession would have no case at the bar of public opinion even though it were sacrificed to the method. But it appears to me quite clear that this method of practice will not only fail as a panacea for the health of the community but will debase the practice of medicine so that all parties will be worse off.

Obviously under some system comparable to the "panel system" in England, a premium is placed upon the number of visits or calls that a given practitioner can make. From this it follows that it is clearly to his financial interest to see the least serious cases and to visit those who live in his immediate vicinity. Obviously, to care for the seriously ill is likely to consume time wholly out of proportion to the fee received, and sick patients and those who live at a distance are likely to suffer. It might further be suggested that this system tends to promote the sort of snap diagnosis which flourished in the earlier days of the out-patient clinics of the metropolitan hospitals when they were understaffed and overworked and from which we have been trying to escape ever since.

For these and various other reasons it seem to me clear that compulsory health insurance will inevitably work to the disadvantage of the community and to the very grave disadvantage of the medical profession; but clearly it will not do for us to assume a negative attitude. If we are unwise enough to sit complacently by, it is wholly probable that some system will be put in force which we believe entirely unsound. As evidence of this probability may be taken the situation in England, where the organized medical profession opposed the system suggested by Mr. Lloyd George and to a considerable extent refused to assist him in working out some satisfactory method. As a result he went ahead on his own responsibility and there resulted the "panel system," which now bids fair to be most useful as a warning to the unwary.

State Medicine a Threat, Not a Plan

The phrase state medicine is commonly used to convey some ill defined arrangement by which the state shall become the responsible source of medical practice. It is probably often intended to convey the idea that all physicians should become salaried officers of the state. In this form it is probably rarely used as a constructive suggestion but is intended like the Democratic Party in the days following the Civil War to serve as a threat rather than as a plan. There is, I believe, no sound reason for believing that medicine could thrive in such an atmosphere. At best such a service would be comparable to that now existing in the medical establishments of armies and navies the world over, and in this form it is notorious that lack of inspiration and degeneration more or less inevitably follow.

But if we are inclined to object to it on the ground that it will injure the personnel of medicine there will not be lacking those who oppose it on other grounds. It is certainly to be opposed by those who advocated what they pleased to call

"medical freedom" and who yearly appear before our legislatures in opposition to bills proposed in the hope of improving the condition of the public health. It will also be opposed, and not without reason, by those whose business it is to determine how such a method should be financed. If these officers of the state are to be paid sufficiently large salaries to command the services of really first class men, the bill must be little short of staggering, and, coupled with the steady tendency to saddle the state with many expenses which in the past have been thought unnecessary or of private concern, will probably not commend itself to the average legislature.

State Responsibility for Health

In this form, therefore, I think we need not consider it in the light of a present possibility. If, on the other hand, we understand this somewhat loose phrase to mean progressive assumption on the part of the state of responsibility for health questions, such a situation now exists. More and more the state has been assuming responsibility for certain phases of medicine, chiefly in the field of preventive medicine, and enormous improvements have been made in comparatively recent times. To progress along this line there can be no valid objection and it is not inconceivable that the time may come when we shall be willing to advise the state to enter more and more into the field of curative as well as of preventive medicine. If, construing the phrase still more widely, we understand by state medicine the assumption by communities of responsibility for the care of the sick, we then approach a phase of the question which is inviting and one in which there is much evidence that activity looking toward definite change is widespread.

We rightly believe that our knowledge of the complicated business of looking after the sick entitles us to be heard. I believe there is no reasonable doubt that we shall be heard if we have a constructive plan, and equally little doubt that if we should unwisely confine our efforts to obstruction that we shall receive, if possible, less consideration than we deserve. It is, therefore, with the hope of stimulating discussion and thought rather than with any overweening confidence that I have a wholly satisfactory plan to propose that I desire to invite your attention to a possible line of development which appears to me at least worth considering.

Essentials of Satisfactory Method

Whatever method we adopt must aim to insure to every member of the community satisfactory medical treatment without requiring him to accept charity or go into debt. It must allow a reasonable freedom of choice or, if choice is to be restricted, must guarantee a high grade of medical skill. It must reasonably distribute the cost so that it shall not be unnecessarily burdensome and, finally, it must not interfere with the proper development of the science and art of medicine. We might, perhaps, lay more stress upon this latter point and insist that any system, to be satisfactory, must show evidence of actually promoting the development of medicine.

In attempting to suggest a method of improving present conditions it is only proper to recognize that various experiments are being tried and with varying though considerable degrees of success.

Industrial Medicine

This phrase is often loosely used to cover the medical establishments which have been set up by employers for the purpose of caring for their employees. For many years these establishments have been growing and have now been carried to a high degree of efficiency. There can be no manner of doubt that many of the great industrial corporations now provide for their employees an amount of medical care which closely approaches the ideal. They have wisely provided well trained physicians properly paid, and have organized their work on a system or variety of systems which would go far to solve the problem if it were satisfactory to what one might call the insured. But it is commonly true that the employees for one reason or another dislike this method. It is alleged that they suspect the evidence of paternalism. It is alleged that they object to this limitation of their freedom of choice, and it is alleged that the corporations use the method to their own advantage.

Though these allegations may appear shadowy and unsubstantial, there is probably some basis for the widespread belief that the problem will not be solved in this way. To my mind the greatest objection to this method is that it is a solution carried out privately, but charged against the community in the heightened cost of production, and yet the community has no voice in its management. On the other hand, there is doubt that these establishments have served and are serving a very useful purpose. For the time being, at least, they give time for the orderly discussion and consideration of the problem and they provide an immense amount of what one might call experimental evidence on the methods of managing industrial accidents, diseases, and conditions arising within industry. Whatever method may be finally adopted, we shall owe a considerable debt to these pioneers in this method of caring for the sick upon a large scale.

The phrase "group medicine" has of late years come into vogue to cover what almost amounts to partnerships between the specialties of medicine. These groups are a serious attempt to solve the problem which we are discussing and have undoubtedly promoted efficiency in the diagnosis and treatment of disease. The chief objection to regarding them as the best method of solving the problem is that they are only incidentally constructed for the benefit of the patient. This benefit consists more largely in increased efficiency than in increased expense. It is certainly true that in many of these medical groups the financial benefit of the group rather than of the patient has been the commanding consideration.

The Community Health Center

By whatever method we may finally decide to care for the health of the community the fundamental proposition upon which it is based must be that the public health is a public concern. From this it follows that the soundest method will be that which is based upon community consciousness. For this reason I look to some development in the now rather vague field covered by the phrase "community center" for the solution of the problem.

A great variety of possible developments may be here included. In its simplest form a community may provide itself with a director of health whose business it shall be to coordinate existing agencies, encourage cooperation, discourage duplication, and promote efficiency. In this form it is already in operation in various parts of the country. But it may be doubted whether without more means at his disposal such a director will obtain results at all commensurate with the effort expended. A slight advancement from this plan is to provide such a director with a staff of physicians whose business it shall be to keep in touch with the medical activities of the community and go further than he himself could go along the line of influencing medical practice by suggestion and publicity. But, again, this arrangement falls short of providing sufficient power and does not enable the director and his staff to exert the authority of public opinion which must at the last analysis be the ultimate authority.

One of the clearest signs of the times is the tendency of medical practice to group itself about hospitals, and there can be no doubt that in the future of medicine the hospital will play an increasingly important part. For this reason it has appeared to me wisest in any scheme looking to the provision of care for all members of the community to start with the hospital as a basis and create what might be called the hospital center, whose function it should be not only to provide care within its wards but to radiate medicine in the community at large. The possibility appears to me attractive, but to be successful it must have a far broader conception than the municipal hospitals with which we are all familiar. It must take its authority from an educated public opinion which knows, broadly speaking, what it wants and is prepared to employ experts to obtain it. Undoubtedly such a method can be worked out most easily in comparatively small communities where there is a small city with a large area of surrounding country ultimately dependent upon the city for medical service. Under such conditions one might well conceive that some such machinery as the following would work with considerable satisfaction.

Such a community might construct and own a hospital with sufficient capacity to take care of something more than the average number of sick, not only in the city but in the surrounding district which it must serve. It is perhaps not necessary that this should be calculated to provide accommodations for those who ordinarily avail themselves of private physicians or private hospitals; but, on the other hand, if such a hospital is to be a perfect health center, it should be constructed so as to provide everything which that community wants for the care of its bodily ills. Obviously in communities of large population, it may be wise to construct several such hospitals as there is undoubtedly a working unit in hospital construction beyond which efficiency of operation is sacrificed. But for a moment let us assume that a hospital of no gigantic dimensions will fill the bill, and let us further assume that it is planned to provide accommodations for all sorts and conditions of men.

Group Control of Hospital

In charge of this hospital must be a group, perhaps called a board, who properly represent the wishes of the community, and I believe that this board should serve without pay, so that the only motive for service on the board will be an abiding desire to serve the community. This board must provide itself with a general manager who must, I believe, be a physician, in order that he may be reasonably familiar with the problems with which the board must deal. Such general manager or director must have large powers in executing the policy of the board.

The board must next provide itself with a staff capable of covering the entire field of medicine and medical research, and this staff must be at the service of the community. The problems involved in the selection of such a staff are ob-

viously considerable, particularly if such a hospital is to be started in a community already supplied with a sufficient number though perhaps not sufficient variety of capable physicians. Clearly this staff must be of more than average skill and equally clearly their skill and qualifications must be beyond reasonable doubt and, therefore, must be determined by some authority having no interest beyond the determination of the facts. In order to avoid difficulties the board would probably be well advised to avail itself of the advice of directors of great medical centers who are constantly engaged in the training of experts in every field of medicine. In order to obtain and retain the services of such a staff, proper salaries must be paid, and it may well appear that the provision of such a sum will bear heavily upon the community. This difficulty may, I think, in part be solved by allowing this staff to practise in the ordinary sense of the word and to collect fees from such patients as are able to pay. As the staff, when under this arrangement, would consist of well trained, capable specialists, it would certainly follow that their services would be in considerable demand in the community and that their income from this source would go far to make up the guaranteed salaries which they would be assured of by the board.

From this it would result that the community through the board would pay only the balances and might conceivably not have to pay at all.

The Patients Who Are Eligible

Some difficulty will undoubtedly arise in determining what patients are entitled to free care and treatment, what patients should be partly free, and what patients can defray their own financial obligations. This difficulty, however, is at least much diminished if we assume that this is in fact a community hospital. It is not difficult if proper machinery be provided to ascertain what are the living conditions of any individual and what is his income relative to his obligations. If we cannot assume that the community really wants to promote its own health and is willing to take any reasonable steps in order to do so, then of course this method will fail; but so will any other method, and on this line of argument the whole proposition becomes insoluble.

Open vs. Closed Hospitals

The medical profession will of course be vitally interested in the question of whether this community hospital is to be what is called "open" or "closed." It is, I think, generally admitted that if one has regard only for a high grade of efficient medical practice the closed hospital is likely to give the best results. On the other hand, it is practically a contradiction of terms to refer to a closed hospital as a community hospital. A closed hospital at once denies the freedom of choice which is generally admitted as essential if it is to command the confidence and support of the community. Physicians who are barred, though in good standing, will obviously not send their patients to a closed hospital unless they be compelled to by fear of disaster either to the patient or to themselves. It cannot, I think, be successfully contended that a closed hospital can satisfactorily serve the whole community and, therefore, some sacrifice of efficiency is necessary in the interest of the community operation. The answer to this dilemma perhaps lies in a combination of the two methods. The staff provided by the community must obviously look after those patients who are unable to pay and also such other patients as desire their services. Beyond this, the hospital might well be opened to all reputable physicians with the proviso that the board shall have the power to exclude any physician whose work does not match up to a reasonable standard of excellence.

But such a hospital will not have performed its functions if it stops here. It is growing more and more difficult to provide satisfactory medical care for the small villages and scattered populations of the outlying districts. I am firmly of the opinion that provision for such care is entirely within the function of the community hospital and that unless it serves this purpose it will fail to radiate medicine and, consequently, fail of its purpose. The work now done by isolated physicians attempting to cover a large area of territory could well be taken over by the hospital, whose business it would be to establish throughout the surrounding country small centers provided with a young physician and one or more nurses. These people would be constantly in touch with the hospital staff, thus obtaining advice, consultation, and comfort. While they should be integral parts of the hospital staff, they should be movable rather than fixed and this service should be regarded as a part of the training of the younger men who intend to fit themselves for the practice of medicine in its broadest sense. This line of development seems to me particularly attractive. It would enable such a community hospital to offer a variety of opportunities, particularly to the younger medical men whose capacities are unknown and who might in this way, better than in any other, have an opportunity to survey the broad field of medical practice. The same proposition would hold true as regards the nurses associated with smaller centers. They would see medi-

cine in its relation to people as is not now possible in the hospital training schools. As a result they would not only be better equipped for whatever branch of nursing practice they ultimately espouse, but they would have larger opportunities of surveying the field and thereby learning their own capacity.

I submit this rough sketch of possible medical development for your consideration. It is obviously incomplete, open to objection, and its pathway strewn with thorns. I hope that you will find in it the merit of a conscientious attempt at a constructive program based upon the assumption that the community really desires to have its health properly supervised and its illness properly treated. Any scheme is subject to this consideration and, though it may fairly be doubted whether the community consciousness throughout the country is sufficiently developed and crystallized to know its own wants, it is possible that in various places such experiments may be tried and may prove helpful to a final solution.

FERRY BOAT A PREVENTORIUM

Ferry boats, which have been put out of running by the building of new tubes, have been transformed by the Health Department of New York City into "Preventoriums" or open-air schools for children with tuberculous tendencies.

The boats are anchored at the piers and have been divided into schoolrooms, play rooms, kitchens, and dining rooms. There are shower baths and dental clinics, and doctors and nurses are always in attendance.

Regular hours are apportioned for study and the usual subjects are taught, together with sewing and some of the other manual arts. All work is done in the open air unless the inclemency of the weather makes this impossible. Desks—just as in a real school—are used and all books and necessary material are furnished.

Rest is one of the corrective measures employed and the shaded decks form an ideal place for the sun baths which are regularly insisted upon. The big "comfy" deck chairs are never empty during this period.

Another important part of the building-up process is the serving of regular meals properly proportioned, as in many cases the lack of proper nourishment is the main contributing cause of the physical disability of these student patients. The meals are supplemented by lunches of bread and milk "between times" and the periods devoted to them are always eagerly looked forward to.

In the dental clinics the teeth are given special attention, and at regular periods physical examinations are made. The enterprise results in bringing back vigor to wasted bodies and in making useful citizens of some who might have become merely human derelicts.

Air and sunshine, in effect life savers, are now furnished in abundance to the kiddies of the poorer sections of New York and Brooklyn as the result of municipal progressiveness and the present trend toward the prevention as well as the cure of disease.

The children are taken from the dark, smoky environment and transported to the river where all the long golden days are spent in doing the things which will rid them of whatever physical disability they may have, or strengthen them against possible contagion.

SOCIOLOGICAL PHASES OF THE TUBERCULOSIS PROBLEM IN CHILDREN

By A. LEVINSON, Chicago, Ill.

EVERYONE interested in tuberculosis is aware of the fact that in the main tuberculosis is a social problem. Certain phases of this problem are to be emphasized in regard to the prevention and treatment of the disease in children. From this angle the first phase concerns itself with the question of what to do with children whose parents are tuberculous, and who themselves may not as yet have contracted the disease. The second phase brings up the question of what to do with children who are already infected, whether the process be active or latent.

HEALTH OUR BIRTHRIGHT

More and more it is coming to be appreciated that the curative arts cannot be limited to the study of disease, for corrective measures must be made to include the causative factors.

Especially is this true of tuberculosis in children, which is too often the result of environment and social conditions, the remedy often involving social methods that are subversive and difficult to apply.

A health campaign which gives the child a place in the sun must provide for a training in health habits that will prevent many a handicap in maturer years.

Contact Tuberculosis Among Children

What is to be done with children of tuberculous parents? Are they to be allowed to live with or should they be separated from their parents? If separation is advised, is the parent to be removed from the house, in case only one parent is infected, or should the children be removed from home? If the children must be sent away, should they be sent to a sanatorium or should they be boarded out? Important as is the care of tuberculous children, the protection of children who come in contact with tuberculous adults is of still greater importance, and in the proper handling of contact cases many a case of tuberculosis may be prevented.

Whether or not tuberculosis is hereditary, it must be conceded that the greatest number of cases among children are caused by contact with adults after birth. At present, most people who study tuberculosis clinically and pathologically believe with Ghon and Albrecht that the route of infection in most cases is respiratory, and that the primary focus is usually lodged in the lungs. Children acquire the infection from direct contact with active tuberculosis in adults.

An investigation of a series of 106 cases of tuberculosis in children treated in the tuberculosis clinic for children at the Michael Reese Dispensary demonstrates once more the relation between tuberculosis in the children and that in other members of the family (Table 1). I believe that contact cases should be dealt with according to the conditions of the tuberculous parents—as to whether they are open—raising sputum—or closed cases—and according to the hygienic conditions of the homes. The first rule in dealing with this question is that children must not come in contact with an open case of tuberculosis, whether existing in the father, mother or other member of the family. The tuberculous members of the family must be removed from the house, in which case the child may remain home, provided the other members of the family are non-tuberculous.

When the parent or other member of the family is a closed case, the removal of the child from the house depends on whether the father or the mother is the offending party. If the father is tuberculous and the mother is not, the child should remain with the mother all during childhood, and the father should be removed to an institution, for no one can predict when the father may become an open case. In the presence of tuberculosis in the mother, even if the condition is inactive, the child should preferably be removed from home.

Where to send contact tuberculosis children constitutes a very serious question. They do not belong in a sanatorium for tuberculous patients, as they may contract the disease there if they are not already infected; yet one does not like to place them in an institution together with normal children. As to private homes, people are prejudiced against children of tuberculous parents, especially if there are children in the family.

The best answer that can be given to this problem would seem to be the provision of a special home, where children who have come in contact with tuberculous parents may be sent. There they

can be under the supervision of physicians and nurses, they can be examined frequently to ascertain whether or not they have been infected with tuberculosis and, if so, whether or not the infection can be localized. This would require frequent physical examinations, x-ray and flouroscopic inspection, and special tuberculin tests. Such cases should be kept at the special home until puberty, at the time when the glandular type of the disease changes into the pulmonary type. This will also help the children bridge over the critical period of their lives by giving them special attention, such as rest, diet, and general hygiene. This would have the added advantage of providing means to gain statistical information on this very important type of cases.

Whether or not contact cases are treated in a special home, they should be given special attention and should preferably be treated as tuberculous cases without the children being made

TABLE I.

THE INCIDENCE OF TUBERCULOSIS IN FAMILIES IN WHICH ONE OR MORE OF THE CHILDREN SHOWED A POSITIVE VON PIRQUET TEST.

Total No. Cases Investigated.	Father			Mother			Others in Family		
	Open	Closed	Non-tuberculous	Open	Closed	Non-tuberculous	Open	Closed	Non-tuberculous
106	39	35	29	10	32	64		69	29

aware of the fact. The various tuberculin tests should be employed frequently to ascertain whether or not they have acquired the disease and, if so, at what age. They should be examined at frequent intervals and should be given sunshine, fresh air, and good food.

Care for Infected Children

Before discussing the sociologic phases of the treatment of tuberculous children, it is necessary to define the term, tuberculous children; for as yet there has been no uniformity of opinion as to what constitutes tuberculosis in childhood and what are the main diagnostic features of the disease in childhood. In order to get a working basis I would divide tuberculosis in childhood into (1) acute and miliary tuberculosis, (2) active chronic tuberculosis, and (3) latent glandular tuberculosis.

Miliary tuberculosis, as is well known, consists of the presence of miliary tubercules in all the vital organs of the body; such as the lungs, heart, liver, spleen, and kidneys, usually terminating as a tuberculous meningitis. This form of tuberculosis is of more frequent occurrence in infants, but may be present in children and even in young adults, although in the latter it is very infrequent.

In active chronic tuberculosis the infection is localized in certain structures of the body. It may manifest itself in the form of a pleural effusion, in involvement of bones or joints or of glandular structure. The mesenteric and the cervical glands are the two chains of glands most frequently involved, the first giving rise to tuberculosis peritonitis and the second to cervical adenitis.

Latent glandular tuberculosis is the form of tuberculosis most frequently seen in children, the tracheobronchial glands being the ones usually affected. The children look pale and anemic and occasionally present symptoms due to tracheobronchial pressure, such as brassy cough, expiratory whoop, and hoarseness. Often, however, no symptoms manifest themselves. The x-ray often shows an enlargement of the glands. Percussion often gives hilus dullness, and auscultation usually shows a positive D'Espine sign—whispered bronchophony—and Eustace Smith's sign, venous hum over aortic region. Most significant of all, the child reacts to tuberculin.

After an experience of several years I do not hesitate to make the statement that the only diagnostic sign for the presence of latent tuberculosis in children which very seldom fails is the tuberculin reaction. The other symptoms and signs may or may not be present; in other words, when a child reacts to tuberculin I consider him tubercular even though he show few or no chest findings. On the other hand, if the child does not react the tuberculin, and I am reasonably certain that the tuberculin is active, I consider that child non-tuberculous.

The Weight of Clinical Signs

It should be made clear that importance of clinical signs and symptoms is not to be minimized in the diagnosis of tuberculosis of children. I even consider general appearance, long eyelashes, distended veins over the chest, and winged scapula as indicative of the presence of tuberculosis. The final diagnosis, however, should not be made without the presence of positive tuberculin test, bearing in mind that the reaction does not necessarily mean an active process and that it does not localize the infection, but that it does indicate the presence of a tuberculous infection, active or latent, somewhere in the body.

Miliary tuberculosis and active glandular tuberculosis, as a rule, do not present any sociologic problems as both conditions call for hospitalization. Miliary tuberculosis is fatal in a short period. Active glandular tuberculosis must either be operated upon, in which case the patient must be sent to the hospital, or may be treated with heliotherapy or various inunctions and fresh air,

and these cases as a rule belong to a sanatorium. The great sociologic problem comes up in connection with latent glandular tuberculosis, namely, with children who give a positive tuberculin reaction but who may or may not be sick. The question comes up as to whether these children should be sent to a sanatorium or whether they should be treated at home; as to whether they should come in contact with other children or should be separated; as to whether they should attend school or should be kept out of school. While every child must be individualized, there are certain generalizations of thought that may be formulated in connection with the problem of tuberculous children.

Acquired Attitude a Factor

The treatment of latent tuberculosis in children depends entirely on status of the home, and on the condition of the rest of the members of the family. If the home conditions are good, that is, if there is plenty of sunshine and air in the house; if the child gets good nourishing food, and has enough sleeping space; and, above all, if there are no "open" cases in the family, the child can be treated at home; in fact, it is best for the child to stay at home, for psychological reasons. Children who are sent to a tuberculosis sanatorium acquire a certain mental attitude that makes invalids out of them mentally. More than once have I heard children who have been for five or six months in a sanatorium speak of "Con," as abbreviation for consumption, and "San" for sanatorium; of hemorrhages and of cavities, things that the child should not become acquainted with. It should be our aim to keep close watch on the child's entire physical condition without letting him feel it, without letting him concentrate on his condition.

A child with latent tuberculosis may and should go to school. An open air school is the ideal place for an infected child. If, however, there is no such school in the neighborhood, no harm results either to the child himself nor to other children in permitting him to attend an ordinary school; for at best latent cases are "closed" and thus their presence does not endanger other children.

Rest is one of the principal requirements in the supervision of a tuberculous child, no matter how latent the process may be. Home conditions, and especially home discipline, will therefore play a great rôle in determining the question whether or not the child is to remain at home or is to be sent to a sanatorium. If the mother is unable to discipline the child, to make it rest at the prescribed hours and to take proper nourishment, it may become necessary to remove the child from the home surroundings. In that event a sanatorium may be the only place available, although I usually prefer a rest haven for this type of children, so as to avoid the mental effect of a sanatorium.

If the home conditions are bad, with lack of sunshine, lack of air, or lack of cleanliness on the part of the parents; if the child is unable to get good nourishment because of the poor circumstances of the parents; if the child has no sleeping accommodations, and is obliged to sleep in one bed with another person; or, what is most important, if there is an open case in the family which for some reason or other cannot be removed from the house, the child should be sent to a sanatorium. The results from sanatorium treatment in this type of cases are usually very gratifying. The only drawback in many of these cases is the fact that after several months of sanatorium treatment the child usually has to come back to the same home conditions because of which he was removed, thus undoing all the good that has been accomplished.

The question of special sanatoriums for children is one that should arouse a great deal of interest amongst physicians and social workers. A tuberculous child is much happier in the company of another child than he is in the company of an adult. If no special sanatorium for children is obtainable, a special department for children in a tuberculosis sanatorium is very desirable. It also goes without saying that children with latent tuberculosis who are placed in a sanatorium should be taught the principles of primary avocation the same as normal children. The whole matter may be summarized by saying that the treatment of tuberculosis in children, that is, latent tuberculosis, depends in a great measure upon the social history of the others of the family.

SCHOOLS UTILIZE PLAY INSTINCT

Recreation in Oakland, Calif., makes playgrounds of the school yards, community houses of the school buildings, and the educational work of the school dovetails with the activities of the playground in such a way that where the school teacher leaves off the playground director takes up the work. Wherever possible, supervision is extended to adults as well as children and the program is so constituted that it meets the needs of rural schools with poorly equipped grounds as well as those of the more pretentious city grounds, as it requires a minimum of equipment. The ethical value of such an arrangement is fully demonstrated in Oakland, says *The American City*, and economy has been served as well. Under this plan physical education became a part of the school curriculum, and credits were given for the work in athletics. Team games were resolved into their elementary movements, which exercises replaced the more formal gymnastics of the turnverein type. These exercises became a continuation of the study of physiology and hygiene and were later put into effect on the playgrounds in actual play.

THE ARMY MEDICAL MUSEUM AND THE MEDICAL PROFESSION

By CHARLES F. CRAIG, A.M., M.D., Colonel, Medical Corps, United States Army, Curator, Washington, D. C.

IT IS believed by the author that only a very small minority of the medical profession are acquainted with the fact that in the city of Washington there is available to the medical profession of the United States and other countries one of the greatest collections of pathological and other material, illustrating the etiology, pathology, and methods of prophylaxis of disease and injuries, in the world. This collection is deposited in what is known as the Army Medical Museum, an institution belonging to the War Department and under the control of the Surgeon General of the army. We believe that a short description of this museum and what it offers to the medical profession of this country is of timely interest. The historical data given in this contribution are drawn from a history of the United States Army Medical Museum compiled by Dr. D. S. Lamb, who for more than fifty-five years has been connected with the institution, a greater portion of the time as pathologist, and through whose faithful and enthusiastic labors the greater portion of the collection contributed prior to the recent world war has been prepared, classified, and placed on exhibition.

The Army Medical Museum and Library are housed in Washington and afford a wealth of material and service.

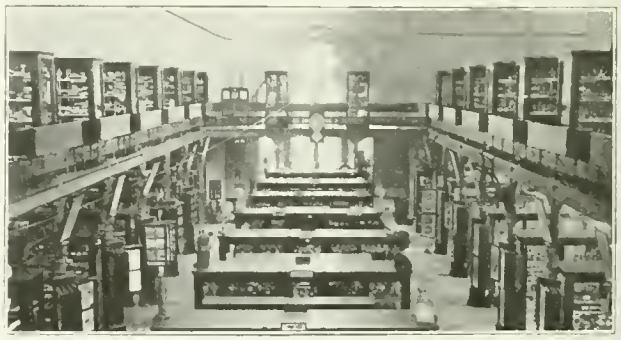
Advanced Medical Science

The Army Medical Museum was established August 1, 1862, by Surgeon General William A. Hammond, United States Army. Primarily its object was to collect and preserve specimens illustrating wounds and diseases causing death and disability in the Army in order that by their study methods could be discovered to reduce suffering and mortality. It gradually became evident that the collection should be extended to include all pathological conditions due both to disease and injury, sanitary models, models of equipment used in the Medical Department of the Army, and models of normal anatomy and disease lesions which could be illustrated in this manner.

The collection of specimens for the Museum was begun shortly after it was established by the surgeons in the Union Army and within a short time enough specimens had been contributed to render the collection one of the most valuable in existence at that time. As early as 1870, Berenger-Feraud stated,[1] "that the United States had done as much in the matter of an anatomical-pathological museum in five years as had been done in all of Europe in a century."

In the same year Saint George Mivart stated:[2]

> The Army Medical Museum contains a series of excellently numbered preparations of great professional interest, remarkable chiefly for its profuse exhibition of the effects of shot, shell, and other implements of war on the human frame. The material for this Museum was chiefly collected during the American Civil War. It may well be said that the Americans are a wonderful people. There are few other nations which would have been capable of so utilizing the results of a protracted internecine war as to make them available in after years toward the advancement of medical science and alleviation of human pain.



This view of the main museum hall shows the convenience of arrangement and the immediate availability of materials.

At that time the collections of the Museum consisted very largely of material obtained from battlefields of the Civil War, but gradually civilian physicians began to contribute specimens, and a very large amount of the material now present in the Museum has come from civilian sources.

1. Gaz. d. hôp., 1870, xliii, 293.
2. Nature, 1870, p. 290.

In 1876 Dr. Meusel, in a review of the catalogue issued by the Museum shortly before this date, said:[3]

The Museum, in view of its aim and origin, is very rich on those chapters which are of specific interest to the military physician. The art and manner with which the material was collected gives us a high opinion of our colleagues, who in the midst of the bustle of war, have brought it together scientifically. It gives us also a high opinion of the organization of the care of the American Army, if we recall how many conditions must be fulfilled in order to give enough time and physicians to prepare after a battle so many careful specimens, as, *e. g.*, the big list of mortal wounds. They lost no time in preparing specimens of interest and instruction to the observer.

In the autumn of 1874, John E. Erickson, after visiting the United States and the Museum, gave a lecture at the University College Hospital, London, in which he stated,[4]

There is one museum which is so unique, so admirably arranged, and so interesting, that I must direct your attention to it for a few minutes. It is the Museum of the Army Medical Department at Washington. This magnificent collection illustrating not only every possible variety of gunshot and arrow injury, but also those diseases which are more fatal than the bullet to an army in field or in camp, has, under the able superintendence of Surgeon General Barnes and Dr. Otis Woodward, been most admirably arranged and catalogued.

From the quotations given it is evident that very shortly after its establishment the Army Medical Museum became noted as a center for pathological research and for its valuable collection illustrating disease and injury. The collections have gradually grown in size and value until at the outbreak of the world war the Museum contained approximately 48,000 specimens, of which approximately 14,000 were specimens of pathological material, 1,300 anatomical dissections and models, 13,000 slides of microscopical sections, more than 15,000 photographs and negatives, and several thousand miscellaneous specimens.

The Collection Grows

Immediately upon the outbreak of the world war it was recognized that the opportunity for securing valuable material illustrating the effects of disease and wounds upon human tissues would be almost unlimited and should be utilized to the greatest extent, and the Surgeon General promptly issued a circular that such material be collected for the Army Medical Museum. A Museum unit for service with the American Expeditionary Forces in France was authorized and dispatched at the earliest opportunity, and the army hospitals in this country were circularized with a view to obtaining pathological and histological material illustrating the lesions of the various diseases occurring in camp life. As a result of these activities of the Medical Department, the Army Medical Museum has a great deal more than doubled the collection that it possessed at the beginning of the war. At the present time the collection numbers more than one hundred thousand specimens, of which a large percentage illustrate pathological conditions. In the comparatively short time that the United States was engaged in this war, the Medical Department of the Army collected and contributed to the Army Medical Museum a larger amount of material than was collected by the Germans during the entire four years in which they were actively engaged in hostilities, and enough to fill a building twice as large as the present Museum if properly prepared and exhibited. All of this material will be available to the general medical profession of this and other countries for study and research and, when classified and prepared for exhibition, will undoubtedly form the most valuable collection of pathological specimens in any museum in the world.

The building at present occupied by the Army Medical Museum and which it shares with the Library of the Surgeon General's Office, is situated at Seventh and B Streets, S. W., and was erected by Act of Congress and finished in 1887, at a cost of $200,000. In addition to the Museum collection there is housed in this building the hundreds of thousands of volumes of the Surgeon General's Library, one of the greatest medical libraries in existence. The building is now totally inadequate in size and it is hoped that in the near future a new Museum building will be erected in which the large amount of material which has been accumulated can be properly classified and exhibited.

From an administrative standpoint the Army Medical Museum is divided into seven departments, as follows: (1) Department of Pathology and Accessions; (2) Department of Still Photography; (3) Department of Moving Pictures; (4) Department of Anatomical and Wax Models; (5) Department of Veterinary Medicine; (6) Department of Anatomical Art; (7) Department of Entomology. In order to understand the scope of the work, it will be necessary to consider each department separately.

Department of Pathology and Accessions

This department has charge of collecting and preparing for the Museum specimens of pathological and other material illustrating the diseases of the soldier and the effects of wounds by various missiles upon the human body, the accessioning of all specimens received by the Museum, and the preparation of all specimens for exhibition purpose. In addition this department has charge of

3. Cor.-Bl. d. Alg. Aerztl. Vereins v. Thuringen, 1876, v. 81.
4. Lancet, London, 1874, ii, 720.

the filing of all records, including protocols of autopsies, for future reference and scientific study. Each specimen, as it is received, is given an accession number and briefly described upon the catalogue card which is filed for future reference, and this file also contains the autopsy protocol, clinical history, photographs, and other data relating to each case.

Modern methods of warfare have resulted in additions to our knowledge of pathology and diseases heretofore unknown have been described. Many specimens have been collected illustrating these additions to medical knowledge and they are being prepared as rapidly as possible for research and instruction purposes. The material is dissected and displayed in such a way as to show not only the wound or pathological lesion in question, but so as to suggest to the physician or surgeon the best means of treatment. Special methods are employed to insure permanency and retention of natural color, so that the preparations will remain a reliable record of the conditions illustrated.

Many thousand gross specimens and histological slides have been received from camps and hospitals both in this country and abroad, and these cover remarkably well the most important diseases observed during the war and war wounds and injuries. There have also been received many hundred specimens illustrating general pathology. This material is being prepared as rapidly as the limited personnel on duty at the Museum permits. Every gross specimen is photographed before being permanently mounted and indexed for future reference and study. In addition photomicrographs are made of slides of particular interest illustrating pathological lesions or animal parasites.

Diseases of the respiratory tract have furnished the largest number of specimens. The influenza-pneumonia series which is being prepared and

A view of the microscopic room of the pathological laboratory. Records and past achievements and research into present problems receive due attention.

A specimen case illustrating war wounds which shows the method of mounting specimens for exhibition purposes.

which now numbers about forty examples of the most striking types, will amount to several hundred specimens when completed and will furnish one of the most valuable collections illustrating the types of pneumonia following influenza in existence. In addition to the gross specimens a wealth of microscopic and pathological material relating to them has been prepared and is being rapidly made available for teaching and research, through the preparation of photomicrographs and lantern slides.

Unique and Valuable Collection

War wounds are represented by amputated extremities and form a large and valuable collection. Most of these specimens show secondary changes due to infection with anaërobic organisms. These specimens are being prepared by sections and dissections in such a way as to display to best advantage the bone lesions and the rela-

tion of the infection to the conditions present. The method of exhibiting these specimens shows to the best possible advantage the damage produced in tissues by modern high explosives, while the colors which have been preserved in the tissue show the differences in the appearance of normal and gas gangrene muscle which is so valuable to the surgeon. There has been enough material of this character collected to make this series extend into many hundreds and even at this early date there have been prepared over ten cases illustrating heart traumatisms.

The tuberculosis series is very large and has been added to greatly during the war. A special selected group of specimens from the United States Army Hospital at Fort Bayard, N. M., has been prepared and exhibited for study. This group consists of approximately one hundred specimens showing practically all types of lesion produced by this disease.

The Museum collection contains many hundred specimens of brains, illustrating all the ordinary lesions observed in this organ and many of the rare conditions produced by disease or injury. Only a small portion of the total material has been prepared for research and exhibition, but when this work has been done the collection will undoubtedly be one of the largest and most valuable in existence.

In May, 1896, the American Dental Association adopted a resolution recognizing the Museum as the national museum of the dental profession in the United States and recommended that all dental collections be deposited there. This has resulted in the accumulation of one of the most valuable collections of dental material in the world, consisting of casts, photographs, specimens of normal and morbid dentition, diseases of the maxillae and oral cavity, photographs and casts of surgical operations, new instruments, and specimens of mechanical work. Most of these specimens are accompanied by descriptions and histories of cases and furnish a vast amount of material of the greatest service to the dental profession.

Besides the collections mentioned, the Army Medical Museum contains one of the greatest, if not the greatest, collections in existence of material illustrating the effect of gunshot wounds upon the bony tissues. This collection was made by surgeons at the time of the Civil War and illustrates the effects of missiles used at that time. In addition to this collection there is an immense collection of fractures due to accident, gunshot wounds, swords and sabers, arrows and tomahawks, and a few by bayonets. While it was impossible to collect anywhere near the material during this war that was collected during the Civil War showing the effects of gunshot wounds, enough material has been collected and will be placed upon exhibition to show the effect of modern missiles both from rifles and larger ordnance, as well as the effects of high explosives and shrapnel.

In addition to these special collections, the Museum has scores of specimens illustrating infectious diseases, chronic diseases of the viscera and blood vessels, malformations and monstrosities, and animal and vegetable parasites. Most of this material is accompanied by excellent clinical, pathological, and other records, rendering it of particular value for research purposes.

From April 7, 1917, to April 7, 1920, more than 22,000 specimens have been accessioned in the Pathological Department, together with more than 21,000 protocols of autopsies. As stated, the pathological specimens consist of material collected both in this country and in France. The latter specimens illustrate well the peculiar diseases associated with trench life and the effect of gunshot and other wounds upon the body. A valuable collection of material showing the effects of the poisonous gases used by the Germans was collected and is now being studied by experts. The pathological collections at present in the Museum offer an almost inexhaustible field for study and research, and owing to the fact that many duplicates have been received, it will make possible the loan of specimens to educational institutions and the exchange with other museums of various conditions not readily obtainable. As soon as it can be done it is intended to place at the disposal of the physicians of the country such excess pathological material as the Museum may possess, and it is hoped in this way that it will fulfill its function not only as a place for the preservation and exhibition of pathological material, but will also assist in the general medical education of the country.

The presence of medical officers in the Army in distant countries who are constantly contributing material to this Museum insures many lesions being represented which are not available to the same degree in civil institutions. This is especially true of tropical diseases, and it is hoped that in time the collection illustrating these diseases will prove of great value to the profession of the United States.

In addition to the preparation and preservation of specimens illustrating disease and injury the Department of Pathology has charge of the accessioning and arranging of all other contributed material. At the present time the Museum possesses a large collection of models illustrating

sanitary apparatus used in the field and in posts; models of apparatus used in the prophylaxis and the treatment of diseases of the soldier; ordnance materials; and miscellaneous specimens of general professional and public interest. It is planned in the near future to remove from the main hall practically all pathological specimens and replace them by models illustrating the methods of prevention and treatment of disease, ordnance and equipment, and other material of general interest not only to the medical officer and practitioner but to the public.

Department of Still Photography

Prior to the recent war, a photographic department was maintained at the Army Medical Museum and very valuable contributions have been made by it to the science of medicine. The first photomicrographs taken in this country were made at the Army Medical Museum by Dr. Gray, and it is doubtful if they have ever been exceeded in accuracy and beauty. A very large number of photographs and negatives illustrating pathological lesions was collected prior to the war and filed with histories and protocols, but the Department of Still Photography was greatly enlarged immediately after the United States entered the war and has accomplished a mass of very valuable work since that time. The photographic section of the Museum unit which was sent to France collected many thousand negatives and prints illustrating the activities of the Medical Department in the field. This department does the photographic work required for the various divisions of the Surgeon General's Office and the Army Medical School, including the making of negatives of copies or prints, enlargements, lantern slides, photostats, and photomicrographs. As already mentioned, a photograph is now being made of every pathological accession received at the Museum and this photograph, together with

Nor is microscopic change alone noted. The pathological exhibits record the gross changes which mark the progress of disease.

Unlimited opportunity for study is afforded by the exhibits of anatomical models.

a photomicrograph, in suitable cases, will be filed with the history of the accession, thus increasing its value for study and research purposes.

This department is also charged with the filing and indexing of the photographs taken by the Medical Department and the Signal Corps photographers during the recent war illustrating various forms of medical activity both in this country and in France. These collections, when suitably arranged, will be available to the services : large by means of copies of prints and lantern slides. Many thousands of x-ray negatives have also been received from the large military hospitals in this country and in France and are continually being received as hospitals are closed. These, when classified and indexed, will form an immense and most valuable collection illustrating almost every condition that can be diagnosed by means of the x-ray. Aside from x-ray negatives, it is believed that there will be a collection of from fifty to seventy-five thousand negatives of photographs of medical activities taken during and since the war, the vast majority of which will be of the utmost value for instruction purposes and in research work.

Department of Moving Pictures

Some months after the declaration of war a moving picture department was established at the Museum as part of the unit known as the Instruction Laboratory, the latter being a field organization attached to the Museum. This department was established for the purpose of producing moving pictures which would illustrate methods of treating disease and wounds, field operations, sanitary procedures, and other activities of the Medical Department. During the time that this department was most active 137 different subjects were filmed, most of them being at least two reels in length and many of them four to nine reels in length. Many of the films produced were used

in propaganda and in instruction purposes in the camps and hospitals of our armies. Among the most successful and valuable of these films may be mentioned the following: Fit to Fight; Diagnosis of Tuberculosis; Fighting the Cootie; Mosquito Eradication; Training the Medical Officer; Come Clean; The End of the Road; and Fit to Fly.

Shortly after the armistice was signed it was decided, owing to the great expense connected with this department, to cease operations so far as the manufacture of moving pictures was concerned; but the films have been kept in circulation, being distributed not only to the military service but, upon request, to civilian institutions for instruction purposes. Some of the films that were made at the Museum are the best available upon the subjects treated and are in constant demand not only by surgeons of military commands but by medical schools and medical associations throughout the country. These films, when available, are loaned without charge for a period of two weeks to medical societies, colleges, and preparatory schools for medical colleges, but the express charges both ways must be paid by those requesting them.

It is hoped in the near future, when funds are available, to resume the making of moving pictures, as they are undoubtedly most valuable both in the instruction of officers and men of the Medical Corps and in presenting the activities of this Corps to the general medical profession and the public. Many of the pictures that have been produced, and could be in the future, are not only of value to the Medical Department from an instructional standpoint, but are just as valuable to the general medical profession.

Anatomical and Wax Models

Prior to the recent war the Army Medical Museum had a valuable collection of anatomical and wax models. The anatomical collection consists very largely of *papier mache* models and manikins, mostly of French manufacture, although there are many injection preparations and wax preparations illustrating anatomy. This collection has been placed in a special room where it is available for study and is very largely used by students of anatomy and medical students to whom the Museum is available. The collection of wax models is probably one of the most complete in the world. It numbers, including those which have been added during and since the war, 780 models. These models are divided into those illustrating skin diseases and syphilis, the pathology of the eye, vaccinia and variola, war injuries, and embryology. The models of the lesions of leprosy, tuberculosis of the skin, tumors, and fifty-five models showing the lesions of syphilis from the initial lesion, genital and extragenital, to the late tertiary manifestation, are especially valuable and realistic. The Baretta group consists of 325 models illustrating almost every disease of the skin, but is especially rich in illustrations of the rarer forms of skin diseases. A very valuable collection of models devoted to embryology is that prepared by Dr. Zeigler of Freiburg, while the pathology of the eye is beautifully illustrated by wax models by Jules Talrich. The Wallis collection prepared during and since the war by Dr. Wallis includes eighty beautiful models representing war injuries and skin diseases observed in the army hospitals during the past two years.

In addition to the anatomical and wax models mentioned, several large collections of plaster masks illustrating facio-maxillary surgery have been received from various hospitals. These models are accompanied in most instances by photographs and drawings descriptive or illustrative of the operations performed, and furnish much material for study and research to surgeons interested in this very important branch of surgery.

Department of Veterinary Medicine

This is a new department in the Museum organized after the Veterinary Corps was taken over by the Medical Department in accordance with the National Defense Act. The object of this department is to collect veterinary material showing the close relationship between the work of the Veterinary Corps and that of the medical profession. Instructions were issued to all veterinary officers upon the subject requesting their cooperation in collecting specimens, and full directions were sent to each officer as to the preserving, packing, and shipping of specimens.

The collection of veterinary pathology has already a considerable number of most interesting preparations and it is only a question of time when it will be greatly augmented. Eventually it will comprise material illustrating comparative animal pathology, meat and dairy hygiene, and animal and food parasites.

Due to the close relationship of the different branches of the Medical Department, the establishment of this new department should prove of great interest to officers specializing in preventive medicine and modern sanitary methods. The collection will also be of great value for purposes of instruction at the Army Medical School in teaching both medical and veterinary officers and will be most interesting to the general public in showing the intercommunicability of disease conditions in man and the lower animals.

During the war several artists were assigned

to duty at the Museum for the purpose of reproducing in colors pathological conditions and war injuries observed in specimens received, and as a result of their work approximately fifty paintings illustrating such lesions were prepared, together with a large number of drawings illustrating various stages in surgical operations performed in army hospital. In addition to the artists employed at the Museum some of the general hospitals were supplied with an artist from the Museum force, and from these hospitals valuable drawings and paintings have been received illustrating operations performed at the hospitals, especially those

All of the cabinets shown in this picture are devoted to facio-maxillary surgery and microscopic exhibits.

in plastic surgery and injuries of the bones, while the artists attached to the Museum unit in France prepared several hundred colored and uncolored drawings and paintings illustrating diseases and wounds occurring in the American Expeditionary Forces. These have been received at the Museum, catalogued, and filed so as to be available for study and inclusion in the Medical and Surgical History of the War.

Department of Entomology

The Department of Entomology has charge of the collection and identification of mosquitoes and other insects concerned in the transmission of disease to man and lower animals and those concerned in the contamination or destruction of food products. The classification of mosquitoes is especially important from the standpoint of the prevention of malaria, yellow fever, dengue, and other diseases due to these insects. Bi-weekly collections are made at all posts at which troops are stationed and these are sent to the entomologist in charge of the department for classification. With the insects is sent a statement regarding the prevalence of any mosquito or other insect-borne disease, with the number of cases and any data regarding the breeding places and habits of any special species of insect. The report on the collection is mailed to the Surgeon of the post and includes the identification of the insects received, together with any information which may be of value in the prevention of the breeding of such insects, or their destruction. The department is responsible, also, for preparing insects for teaching purposes at the Army Medical School and for exhibition purposes in the Museum.

Wide Field of Activities

From this brief description of the collections and work of the Army Medical Museum it is evident that its activities cover a wide field and that for the collections to be available for research and study to the general profession they should be displayed in such a manner as to render them readily accessible. The present building occupied by the Museum is also occupied by the Surgeon General's Library and is totally inadequate in size for housing both institutions. Plans have been made to erect separate buildings for the Museum and Library as a part of the great medical unit which it is hoped to establish in conjunction with the Walter Reed Hospital. When such a building is completed, the collections will be more easily available for study and displayed in such a manner that they can be classified and properly separated. At the present time, owing to lack of room, it is impossible properly to classify many of the groups available for exhibition purposes,

The finest art contributes these paintings, each specially adapted to study and a contribution to science.

and it follows that hundreds of specimens are so crowded as to render their study very difficult.

At the present time the collection in the main hall is composed of models illustrating sanitary apparatus and apparatus used in the treatment of the sick and wounded, ordnance material, hospital and surgical equipment, and pathological specimens, while the galleries are filled with the great collection of gunshot wounds and fractures of bones collected during the Civil War, the very extensive and valuable dental collection, and mis-

cellaneous collections. All of these various groups should be placed in such a way that they can be classified and easily studied, preferably in separate rooms; but, owing to the construction of the Museum and the lack of room, this very diversified material is all crowded into the main Museum hall. An effort has been made to select certain collections that are large enough to fill available space, and these have been placed in separate rooms on the first floor of the Museum. These collections comprise the following groups: Gross pathological specimens; wax models illustrating skin diseases; anatomical models and sections; the historical development of the microscope; and the collection illustrating the method of transmission and treatment of hook-worm disease.

It is hoped eventually to replace all pathological material on the main Museum hall floor with material of general public interest, as specimens of ordnance, missiles, gas masks, sanitary appliances, and sanitary apparatus used in the Army in the prevention of disease. This room will also contain models and paintings of pathological conditions illustrating diseases common to military and civil communities, as malaria, typhoid fever, dysentery, and tuberculosis, and it is planned to arrange these exhibits in such a way as to be valuable in the instruction of the general public in hygiene and preventive medicine.

As has been already stated, there is a great mass of pathological material available for research and it is planned in erecting the new Museum building to provide facilities for research workers who desire to study this material. When space is available, it will be the policy of the Surgeon General's Office to encourage research workers at universities and in the Medical Corps of the Army to take up the study of special subjects at the Museum, where material will be available. At the present time it is impossible to furnish working rooms for research purposes, but a large amount of material has been sent to workers along special lines upon their own request, and such material, if it is available, will always be sent upon request to any recognized research worker with the understanding that credit will be given the Museum in any report that may be published regarding it.

The training of qualified enlisted men as pathological technicians and in museum methods is a function of the Army Medical Museum of great importance. During the war the medical service was greatly crippled owing to lack of qualified technicians for pathological work, and it is hoped that this will be obviated in the future by the instruction at the Museum of a certain number of enlisted men each year who will be capable of performing the technical work necessary at autopsies and in preparing gross and microscopical material for study.

In conclusion, the author desires to state that it is the aim of the Surgeon General of the Army to make the Museum a great instruction and research center, not only for officers of the Medical, Dental, and Veterinary Corps, but for the general medical profession. The facilities of the Museum are at the service of the profession of this and other countries, and any request that may be received for material will be gladly complied with if it is possible to do so. Contributions of pathological or other material are respectfully requested and due credit will be given the donor in the records of the Museum and on the labels of specimens when they are placed upon exhibition.

INDUSTRIAL HYGIENE IN CANADA

In the *Public Health Journal* (Toronto), May, 1920, appears a report of a Committee on Industrial Fatigue of the Honorary Advisory Committee on Industrial Research. This report is preliminary, but shows advanced thinking on industrial hygiene. Some excerpts indicate the grasp of the Committee on the subject. They state:

The science of industrial hygiene is a young science since, while from the early days of industry humanitarians have endeavored to reduce the more flagrant hardships of the worker, it is only within recent days that general recognition has been given to the importance of physiology in relation to the problems of industrial life. It is probably true, as a broad generalization, that the ever increasing volume of welfare work on this continent and in England arose out of general social and humane principles and with possible rare exceptions owed little for direction to scientific and economic evidence. Even the enlightened employer followed his own ideas of what should be done for his employees, without appreciation of the problem as a scientific one calling for investigation and research into the actual facts of the case—into the true relationship existing between the working conditions and the actual output of the workers.

Recognition of the fact that in the science of physiology should be sought definite criteria for the ideals of working conditions was astonishingly late in coming. . . . Equally tardy and obscured in the same way by lack of scientific data has been the realization of the fact that health and efficiency go hand in hand. In an epigram the British Committee state their conclusions that "without health there is no energy and without energy there is no output." It is not too much to say that on application of this great maxim the prosperity of modern industry will largely depend. Sporadic recognition of the principles there has, of course, been; and many employers must have discovered that reforms of working conditions in their plants undertaken in the general interests of the welfare of their employees have not merely been so much unremunerative outlay, but have proved good economic investments, leading to greater efficiency and greater production. Thus, as early as 1894, Sir William Mather, reviewing the actual result on output of an experiment in reduced hours of work wrote, "We seem to have been working in harmony with a natural law, instead of against it, as in the unnatural conditions of men beginning the work of the day without provision required by nature for the proper exercise of their mental faculties and physical powers. *Of this I am assured, that the most economical production is obtained by employing men only so long as they are at their best—when this stage is passed there is no true economy in their continued work.*" That recognition was not general, however, is witnessed by the experience of the war, the early days of which saw frantic efforts to get greater output by increasing the hours of work.

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

LEWIS J. POLLOCK, M.D., *Chicago*
Neurology, Psychiatry and Psychology

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

JOSEPH C. BOCK, C.E., Ph.D., *Milwaukee*
Physiological Chemistry

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

THE NEWER LITERATURE ON HEREDITY

HEREDITY, evolution, eugenics, race improvement are terms and problems which of late with ever increasing frequency have appeared in conversation and literature; and the word "literature" in no sense is meant to be restricted to medical or scientific literature, but properly includes the serious and the trashy novel, the short story of the monthly magazine, and the screen scenario. Writers in the latter group may well be forgiven their ignorance, or their deliberate attempts to weave the thin threads of known facts into complex and glittering textures. However, some of the seemingly scientific writers as well, draw all too freely on their imagination, and among them the medical writer is the worst sinner. Undeniably more than to any other source the layman appeals to the physician for much needed authoritative enlightment on questions of heredity and eugenics. His obligation to possess thorough familiarity with established facts is most obvious. He might easily obtain them from the five volumes mentioned in this discussion. We have grouped them together in a combined discussion, not for the convenience of the reviewer, but because they represent a logical sequence.

There probably does not exist in the English language a more complete, a more readable, or a clearer presentation of the entire problem of heredity than the work of J. Arthur Thomson.[1] This author has the rare gift, manifested in many other volumes from his pen, of elucidating the most complex scientific problems with astonishing simplicity to the educated layman. This volume, at present, has but the one shortcoming that it is seven years old and, therefore, does not include the latest advances in knowledge, which are of particular interest to the physician.

This additional information, however, may be found in the book of Conklin[2] on "Heredity and Environment." A clearer differentiation between supposedly heredity, but actually only environmental influence has been the aim of many scientific investigators in recent years. The result of all this work is set forth by Conklin. In this volume the medical reader will find a most valuable chapter dealing with the possible control of certain phenomena of heredity for the benefit of the race-eugenics; and another chapter on the influence of the relentless laws of heredity and the inevitable effects of environment on the ethical problems of personal responsibility.

From this broader point of view heredity is considered in the volume mentioned as third in the above list, "The Third and Fourth Generation," by Downing.[3] This is a small book which, though primarily written as a text for young people's classes, cannot fail to prove of great value to ministers, teachers, and laymen "who are desirous of obtaining in untechnical language the results which scholars have arrived at in the modern attack upon the problems of evolution." The religious significance of a reverent and thoughtful understanding of that interesting problem, usually called eugenics, is apparent when one thinks of the perfecting of human society as the ultimate goal of the divine plan. Downing deals with his subject in a very original manner. Beginning with a discussion of the pedigree of famous race horses, he gradually builds up the principles of the laws of heredity, demonstrates the visible basis and apparent exceptions of heredity, and concludes with an exposition of the practical prob-

1. Thomson, J. Arthur: Heredity, G. P. Putnam's Sons, New York, 1913.

2. Conklin, Edwin Grant: Heredity and Environment in the Development of Men, Princeton University Press, Princeton, 1920.

3. Downing, Elliot Rowland: The Third and Fourth Generations, University of Chicago Press, Chicago, 1918.

lems of human heredity. The fathers and mothers of the next generation, he states, have a right to a frank presentation of the problems of reproduction and heredity.

Similar thoughts form the basis of an unusually appealing, and one might well say, of an impressive lecture on "Sex Attraction" given by Vaughan[4] to the teachers in the public schools in Michigan and at the Michigan State Normal School. He treats the sex problem in its various normal and abnormal phases in a broad scientific manner and obtains rare lucidity by avoiding the discussion of minor points. It is his sincere belief that proper understanding of the fundamental principles of reproduction and heredity, proper appreciation of health and careful selection of the mate as the really determining factors for the future child, will, more effectively than fear and threat, prompt the adolescent man and girl to preserve jealously their physical and moral health. "While the central purpose of sex attraction is reproduction, this by no means is all. Before there is reproduction there should be something worthy of being produced."

A discussion of the newer literature on heredity would be incomplete without the inclusion of the little volume of Dunlap[5] on "Personal Beauty and Racial Betterment." Part I of this book entitled "The Significance of Beauty," culminates in the thesis that human beauty, considered from the standpoint of the psychologist and not, as is commonly done, only from that of the artist, is the sign and expression of potentiality of the individual to improve the species, both physically and mentally. The unavoidable deduction that the conservation of beauty must, therefore, become the important aim of all efforts in racial betterment, forms the subject of Part II. Careful perusal of this volume can leave in the reader's mind but little doubt that the writer presents his facts and reflections in a most convincing manner to prove his contention.

H. E.

X-RAY LOCALIZATION OF FOREIGN BODIES

THERE are few operations in minor surgery which cause the surgeon, to say nothing of the patient, such great inconvenience as the common condition of an embedded needle in the foot or hand.

The usual procedure is: that x-ray examination is requested, two pictures are made—an anterio-posterior and a lateral—which causes the broken needle or pin to stand out clearly. It is definitely located between such and such land marks, before this and behind that and, to make assurance doubly sure, an indelible pencil mark is placed directly over the foreign body by the aid of a fluoroscope. The patient is taken into the dressing room and promised within a moment or two the needle will be found. An incision is made over the area, retractors are put in which pull the field to one side or the other. Soon the wound is filled with oozing blood. The x-ray pictures are consulted again, a larger incision is made. If the task is undertaken under local anesthesia the doors are tightly closed to keep the patient's expressions of emotion within the operating room; more anesthetic is injected. As a rule, the needle is eventually found, but usually in a location just under a further fascial sheath, or it may be in the walls of the wound itself, covered or pulled to one side by the retractor. To find it a large incision has been made, the tissue has been freely cut during the search, and much time consumed. This fanciful description only too closely follows the usual course of procedure which is absolutely unnecessary.

With the aid of the x-ray the needle can easily and quickly be removed through a small opening and with little trauma to the tissues. The foreign body is localized as before and the skin marked.[1] The patient is not removed from the x-ray room, but is left *in situ quo*. The shades are raised or a bright artificial light is turned full on the operative field. An under-table tube is employed. As a fluoroscope one of the several which has been devised lately can be employed, or if none is at hand, an old fashioned hand fluoroscope box will serve. If this is held firmly to the face, the fluoroscopic image will of course be seen no matter how bright the daylight or the artificial illumination. As a rule, local anesthesia suffices. A small incision is made as before and, as before, the needle may not be encountered. The knife or a probe is put in the depth of the wound. The fluoroscope is brought in position, the x-ray is turned on and the position of the needle noted in reference to the tip of the knife or the probe. In order to do this the part will be gently turned, so that observations are made if possible in positions at right angles to each other. The x-ray is turned off and the wound is deepened in the direction necessary. This maneuver may need to be repeated two or three times before the needle is found, but it more often occurs that after the first incision a forceps can be placed in the wound and, under x-ray guidance, by means of blunt dissection, the needle can be found, grasped, and withdrawn.

An aluminum filter is used. The total length or x-ray exposure is short, so that there is no danger of burning the patient. The tube is diaphragmed down so that the entire fluorescent beam falls within the fluoroscopic screen, thus protecting the surgeon.

The size of the incision is minimal, the injury to the tissue very slight because guided by the fluoroscope, no explanatory maneuvers having been made.

The required instruments are at hand wherever there is an x-ray equipment. The technic[2,3] is simple and can be further simplified by having the assistant wear the fluoroscope and, by means of intermittent x-ray observations guide the surgeon.

Why such a simple procedure has not become more widely adopted, especially in industrial surgery, is difficult to understand.

R. B. B.

MEDICO-HISTORICAL BULLETIN

IN SPITE of the growing interest in medical history there is to this day no weekly or monthly journal of medical history either in this country or in England. The *Annals of Medical History* appears only three to four times a year. The contents of the *Annals* are excellent, but the reading matter is too heavy for the ordinary physician. Also the *Bulletin* of the Society of Medical History of Chicago appears only intermittently, and contains only heavy reading matter. The *Johns Hopkins Hospital Bulletin* often contains articles on medico-historical subjects; the journal as a whole, however, is not devoted to medical history. It is apparent that there is a need of creating a journal or bulletin of medical history which should contain not only original articles but also editorials, historical news items, announcements of new

4. Vaughan, Victor C.: Sex Attraction, C. V. Mosby Company, St. Louis, 1920.
5. Dunlap, Knight: Personal Beauty and Racial Betterment, C. V. Mosby Company, St. Louis, 1920.

1. Bettman, R. B.: A Simple Operating Fluoroscope for Aid in Removal of Foreign Bodies, Jour. Am. Med. Assn., March 24, 1917.
2. Eastman, J. R., and Bettman, R. B.: X-Ray in War Surgery, Ann. Surg., July, 1917.
3. Stiney, R. A., and Henry, A. K.: Modern Methods of Removal of Projectiles, Surg., Gynec. & Obst., June, 1920.

books on medical history, and other matters of interest in this branch of medicine.

The *Medico-Historical Bulletin*, which has just appeared, seems to have fulfilled this need. It contains many interesting items for those who have the cause of medical history at heart. There is an editorial on Mortimer Frank; an article on Retzius; an illustrated article on Guthrie, the discoverer of chloroform; a book review on "Memoirs of a Nurse," and many other short items. The *Bulletin* is edited by Victor Robinson, whose "Pathfinders in Medicine" and "Don Quixote of Psychiatry" constitute important contributions to medical history. The editor promises to enlarge the *Bulletin* if the readers respond with subscriptions and the students with contributions.

This new publication deserves a place in American medical literature, and there is no doubt that the progressive physician will encourage the editor to develop it into a big journal on medical history.

NEW RESEARCH ON YELLOW FEVER

IN 1918 the International Health Board of the Rockefeller Foundation appointed a commission to study yellow fever in Ecuador. This commission consisted of Dr. A. I. Kendall of the Northwestern University Medical School, Dr. Hideyo Noguchi of the Rockefeller Institute for Medical Research, Dr. Charles A. Elliott of the Northwestern University Medical School, Dr. Mario G. Labrado, and Mr. Herman E. Radenbaugh.

Although all the work done by the Commission has not been published, yet, it is already evident that much has been accomplished in the study of yellow fever. The publication of Dr. Kendall in the Transactions of the Chicago Pathological Society,[1] of Dr. Elliott in the *Archives of Internal Medicine*,[2] and the series of articles published by Dr. Noguchi in the *Journal of Experimental Medicine*[3] show that new light has been thrown not only upon the epidemiology and symptomatology of the disease, but also on its etiology and treatment. Elliott has, in the main, corroborated the classical description of the symptoms of yellow fever given years ago by Guiteras, which can be summarized in five words: Facies, fever, pulse, albuminuria, and vomitus. Elliott summarizes the diagnostic point of yellow fever as follows:

(1) The fact was noted if the patient was a foreigner and not a native of Guayaquil, or had recently arrived from the interior. The local physicians consider it practically impossible that a child born in Guayaquil can grow to maturity without developing yellow fever and, therefore, become immune; or that a susceptible adult can live long in Guayaquil without becoming infected.

(2) A low continuous fever course, with relative bradycardia: a fever of 40° C. or more speaks against yellow fever.

(3) Nausea and vomiting: "black vomit" is practically diagnostic.

(4) Epigastric pain and tenderness are often intense from the beginning.

(5) Development of nephritis is rapid and progressive, with albumin present as a trace on the second day and increasing to from 1 to 3 gm. per liter on the fourth day.

(6) Flushed face, injected conjunctivae, swollen and bleeding gums are characteristic.

(7) The gradual and progressive development of jaundice is noted in the conjunctivae as early as the third day.

Also, Elliott has found that the blood changes in yellow fever are not characteristic; the average red and white blood cell count was about normal, only nine cases showing leukopenia. The same was true with the differential count. The hemoglobin, however, was low; so was the blood pressure.

Kendall seemingly has so far only given a preliminary report, and will publish his main results in the near future. Noguchi, on the other hand, has already published eleven papers and his results are of great import. Noguchi found that a filterable microörganism belonging to genus Leptospira can be recovered from the blood or from the organs of human beings suffering from yellow fever. He has termed this organism Leptospira icteroides. This organism, when inoculated into certain animals, produces the same lesions and symptoms that are observed in the patient from whom the organism is isolated. He has also found that the serum from patients recovering from an attack of yellow fever in Guayaquil has the power to agglutinate and dissolve the organism when introduced into the peritoneal cavity of a normal guinea pig. Noguchi, therefore, believes that there is a strong relation between the organism he isolated and yellow fever; also, he believes that there exists a relation between the Leptospira icteroides and the Leptospira icterohemorrhagia.

Having found the most probable cause of yellow fever, Noguchi experimented with a polyvalent immune serum of high potency in the treatment of an infection produced experimentally in guinea pigs with Leptospira icteroides. The serum was found to be of definite advantage in checking the progress of the infection. When administered during the period of incubation, the serum was found capable of completely preventing the development of the disease, although on subsequent examination hemorrhagic lesions were found in the lungs of the guinea pig which survived. Moreover, the serum modified the course of the disease and, when used in the early stages of infection, prevented a fatal outcome. If the serum was employed after jaundice and nephritis had been present for several days the serum had no perceptible beneficial effect. This, however, was to be expected.

The work of Noguchi promises to be of great benefit to mankind, and the Rockefeller Foundation is to be congratulated on the splendid results accomplished by the members of the Commission.

1. Kendall, A. I.: National and International Relations of Sanitation in Ecuador, Transactions Chicago Pathological Society, June, 1919, p. 9.
2. Elliott, Chas. A.: A Clinical Study of Yellow Fever, Arch. Int. Med., 1920, xxv, 174.
3. Noguchi, H.: Etiology of Yellow Fever, Jour. Exper. Med., 1919, xxix, 547, 565, 585: 1919, xxx, 1, 13, 95, 401; and 1920, xxxi, 135, 159.

BLOOD CHEMISTRY IN PREGNANCY

THIS report of Losee,[1] though marked by negative results, is nevertheless of value. In a series of cases of normal pregnancy, toxemia of pregnancy, and eclampsia, he reports that the results in chemical examination of the blood gives no information as to the nature of the condition or the severity of the disease. A great deal of work has been done in the past in the study of the metabolism of cases of the toxemia of pregnancy and eclampsia. From time to time a number of observers have thought that they found the real basic changes responsible for these conditions and the diagnostic chemical findings. Most of the work referred to was done before the recent advances in accurate chemical analysis of blood and urine, and these earlier results have one by one been disproved. The investigation by Losee has been done by the most

1. Losee, J. R., M.D.: Some Observations on the Chemical Examinations of the Blood and Urine in Normal Pregnancy and in Toxema of Pregnancy, Bulletin of the Lying-In Hospital of the city of New York, March, 1920, xii.

improved chemical methods and it appears that his results can be relied upon. His article will save much useless work in other laboratories, and, although his findings were negative, they should stimulate workers interested in this subject to investigate along other lines and the ultimate etiology of toxemia of pregnancy and eclampsia.

The entire March, 1920, issue of the *Bulletin* of the Lying-In Hospital of the City of New York is worthy of being read as it contains many interesting articles. Another article also by Losee on blood transfusion in obstetrical cases is especially important. W. T.

A STAIN FOR FROZEN SECTIONS

IT has always been difficult to obtain a satisfactory stain for use in staining frozen sections for operating room diagnosis. This trouble has recently been much aggravated during the time when it was difficult to obtain stains and laboratory apparatus of all types.

There are two stains which have been most commonly used. The alcoholic solution of thionin has been found quite satisfactory, but nevertheless leaves much to be desidered. Undoubtedly the best stain, when a good preparation could be obtained, has been polychrome methylene blue. Terry* is therefore to be thanked for his publication of a method for the easy preparation of polychrome methylene blue from ordinary methylene blue. He asserts, and McCarthy of the Mayo Clinic verifies his claims, that this polychrome methylene blue gives excellent results. For a description of the method of preparation consult the original communication.

CIRCULATORY EFFICIENCY

THE investigation by Dunn[1] of the effects of multiple embolism of the pulmonary arterioles is very stimulating. The emboli used experimentally were starch granules. When a sufficiently large amount was injected, that is, when a sufficient number of arterioles were plugged, rapid death occurred. The important finding, however, is that a great number of arterioles could be blocked and produce only a slight effect. It should be noted that these emboli lodged in the arterioles, which are end arteries, and not in the capillaries. Each arteriole blocked eliminated from the pulmonary circulation the area supplied by this artery. Even when the function of a large amount of lung tissue was removed from the circulation, aeration of the blood and all other functions remained normal. These experimental data coincide with clinical observations in cases of massive pneumonia in which normal aeration of the blood continues. This work of Dunn was undertaken to investigate the general problem of abnormal physiology which occurs in cases of gas poisoning in which relation many of Dunn's observations are of interest. The investigation described appears to be of greatest general importance. W. T.

REWARDS FOR MEDICAL DISCOVERIES

A DISTINCTLY new departure on the part of British medical and scientific bodies is shown by the action of the British Medical Association and the British Science Guild. A joint committee of these bodies has issued a report in which is recommended awards for medical discoveries. The Committee is highly representative, including among its members such men as Sir Clifford Allbutt, Prof. Benjamin Moore, Prof. J. S. Haldane, Sir Ronald Ross, and Prof. W. Bayliss. The Committee reached the decision that awards should be given and considered that the following different cases should be considered:

I.—*Discoveries involving pecuniary or other loss to an investigator*, either by direct monetary sacrifice or by expenditure of time, or by diminution of professional practice without corresponding pecuniary gains. It is pointed out that a great example is that of Edward Jenner, who occupied himself so closely with the investigation of vaccination against smallpox that he lost most of his medical practice and, also, considerable sums in expense. It is considered that the plea for compensation in such cases is unanswerable, and in 1802 and 1807 the British Parliament fully acknowledged its obligation under this head by giving Jenner compensation in two sums of £10,000 ($50,000) and £20,000 ($100,000).

II.—*Discoveries which have increased the professional emoluments of the investigator by enhanced practice or other means.* Such are, frequently, improvements in surgical operations or medical treatments which lead to increased practice. Another case is that of serums and therapeutic measures, which may have been protected and put on the market. Here compensation cannot be demanded, and pecuniary awards may be generally held to be unnecessary; on the other hand, honors are often, and justly, bestowed upon such work.

III.—*Discoveries which involve neither gain nor loss to the investigator.* This class includes most of the good and sometimes great clinical, pathological, and sanitary discoveries achieved in the world. Here, also compensation can scarcely be demanded, and honors have already often been given; but pecuniary awards should be sometimes bestowed as an act of grace when the value of the discovery to the public or to a government greatly exceeds the emoluments of the investigator. And the principle should hold even in the case of men who were directly paid for undertaking the researches which led to their discoveries, especially when such payment was, as usual, small and the resulting discovery great.

As for the men who should be aided, special attention is called by the committee to the following particular cases which sometimes occur: (1) men who have refused lucrative posts in order to complete their researches; (2) men who have refused to protect their work for fear of limiting its application; (3) men who have carried out investigations for governments for little or no payment on patriotic grounds.

Attention is likewise directed to the following considerations: (1) Honors are usually given as much for clinical success as for medical discoveries, though the latter possess a far wider influence and application than do the former. (2) When given for clinical work or for discoveries under class II, honors often confer distinct pecuniary advantages by enhancement of practice, but for discoveries under classes I and III they have no such effect; and cases are on record where they tend to reduce emoluments by unfitting recipients for certain posts. (3) Most people enter the medical profession at considerable expense, not only from altruistic motives but also to make a living; and it is usually only at a later period that they take up scientific investigation, either from a sense of duty or from predilection or merely because a good opportunity offers. When, therefore, a man finds that his scientific work, however successful and important it may have been, has actually yielded him less emolument than he might have obtained from ordinary clinical work, he naturally feels discouraged and his experience prevents young

*Terry, Benjamin T.: Increasing the Pathologists' Usefulness and His Rewards, Jour. Am. Med. Assn., 1920, lxxiv, 1775.

1. Dunn, John Shaw: The effects of Multiple Embolism of Pulmonary Arterioles, Quart. Jour. Med., 1920, xiii, No. 50.

men of ability from following his example, and therefore tends to check the prosecution of studies which are of the highest value to humanity. In the public interest the Committee insists on the following principles: (1) That no medical discovery should be allowed to entail financial loss upon him who has made it. (2) That the compensation or reward which he deserves should be assessed as being equal to the difference between the emoluments which he has actually received and those which a successful clinician might have received in the same time. Among the reasons adduced in the report for insisting upon this principle are that few medical discoveries are patentable, and that such discoveries seldom give good grounds for promotion or for administrative appointments in the public service.

On the question of State awards for medical discovery the report says: "Honors, prizes, and medals being bestowed by the King, or by public bodies or by learned societies, are acts of grace which are generally given after much consideration. But the subject of pecuniary rewards comes entirely within the province of the Committee. During the past few years the British Government has disbursed an annual grant of about £60,000 ($300,000) under the Medical Research Committee for subsidizing investigations in progress authorized by the Committee and carried on by workers selected by it. This grant does not remunerate discoveries already made, but proceeds upon the principle of payment for prospective benefits. Another principle, that of payment for benefits already received, deserves close attention and has been recognized in other countries. The Committee thinks that both principles are sound; but they apply to two different classes of research and are indeed complementary to each other."

Payment for prospective benefits is good business only when some return is almost certain; and for this reason subsidized researches must frequently deal with simple and straightforward questions, admitting of immediate experimental reply.

As a matter of fact, however, most of the great medical discoveries were built upon a much more speculative and uncertain basis, and were achieved by men who neither sought nor received subsidies for these investigations. Surely the state should encourage this class of investigation, partly because it costs the state nothing in the doing, and partly because it seems to achieve the greatest results. Obviously, there is only one way to encourage it, and that is by paying for discoveries when made. Payment for benefits received is always not only good business, but also a moral obligation.

The Committee points out that there are at present hundreds of medical men in Great Britain, and they might have said in other countries also, who possess the knowledge, the brains, and the opportunity for private medical discovery, without subsidies, but who do not attempt it because medical research work does not pay even when brilliantly done. The Committee therefore suggests that in addition to assisting investigations in progress, it is proper for the state to remunerate those who have already conferred the benefits of medical discovery upon it, just as it is proper for a patient to pay his doctor. And this policy will be not only an act of justice but an act of wisdom.

The proposals of the Committee in detail are: (1) That the British Parliament should resuscitate the precedent of Jenner by paying compensation when due for losses incurred in achieving medical discoveries. (2) That Parliament should provide an annual sum, say not less than £20,000 ($100,000), for life pensions to be given as rewards to such of British subjects as have made worthy medical discoveries, such pensions amounting to between £500 ($2,500) and £1,000 ($5,000) a year. Such pensions would be preferable to donations in capital and the sums suggested would be sufficient, because men of science seek only such independence as will enable them to employ their talents in the manner they think best. The procedure of allotment should be similar to that used for the Nobel prizes and for the honors and medals of learned societies, that is, full particulars of the work of all applicants should be kept and considered. The Committee points out that Parliament grants large subsidies to soldiers and sailors, has appointed a commission to consider awards to inventors, and allows patents. It should not, therefore, complain if the medical profession, which has done so much for the nation during the war, now asks for some similar consideration.

It is high time that the medical scientific investigator is rewarded as is manifestly his due. When the fact is taken into consideration that, had it not been for medical discoveries, much of the industrial and commercial progress of the world would have been greatly impeded, the need for and justice of recompensing such work is plainly evident. The construction of the Panama Canal would have been impossible if General Gorgas had not put into effect the discoveries leading to the knowledge that the mosquito was responsible for the dissemination of malaria and yellow fever. Again, discoveries in sanitary science have rendered and will further render the lot of the industrial toiler tolerable and comfortable.

This movement in Great Britain is instructive and interesting from another angle. It is a significant sign that the era of preventive medicine is coming into vogue and that state control is perhaps in sight. The establishment of a Ministry of Health was the first and most important step, and state rewards for medical research are only natural corollaries. Sanitation and hygiene, and especially domestic and personal hygiene, will be the ruling maxims of the day and these measures, intelligently directed and efficiently carried out, will tend to prevent disease and in time will prove good business from an economic standpoint.

LONDON CORRESPONDENT.

A SURVEY OF THE NURSING PROBLEM

The American Conference on Hospital Service appointed in March, 1920, a Committee on Nursing. The Committee is making a study of the nursing problem as it exists in the United States and Canada today.

The Committee asks that the readers of MODERN MEDICINE will help them by giving some thought to the following questions. Replies may be sent to M. A. Cannon, Social Service Department, University Hospital, Philadelphia, Pa.

1. In your opinion, what is the value of the three year course for nurses connected with hospitals; the two year course for nurses connected with hospitals; the High School pre-nursing course; the Red Cross extension course; short courses and correspondence courses?
2. Are the principles laid down for nursing education in these courses right or wrong? If right, how can they be improved to meet adequately the nursing need? If wrong, how should the training of the nurses be made right?
3. What use are the graduates of these various schools making of this training? What misuse are the graduates of these schools making of their training?
4. What, if any, is the nurse wastage during training?
5. What, if any, is the nurse wastage after finishing their course?
6. What are some of the reasons for the shortage of nurses today?
7. What suggestions can be made as to changes in the training to make it efficient and not lower the nursing standards.

HEALTH IN INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

THE ADMINISTRATION OF INDUSTRIAL MEDICINE

INDUSTRIAL medicine needs to be defined. The term as at present used does not suggest to the physician a specialty desirable of acquisition or interesting and profitable to practise; nor to the workman does it mean a complete and dependable medical service.

Most of the materials published under this caption deal with questions of installation, equipment, methods of procedure, or standards of practice—all of which are highly important and constitute a proper field of inquiry on the part of both employers and physicians, and much gain is to be hoped for from the research work of the special committees appointed for this purpose by the American Association of Industrial Physicians. When standards of equipment for given conditions are evolved, and lists of the paraphernalia required are readily available, first aid units or plant hospitals can be installed with a great saving of time and expense over present methods.

But, while it is essential to emphasize a routine that will as far as possible handle the regular work automatically and provide adequate but not too voluminous records of all cases that may become subject to later controversy, the vital consideration in any industrial medical department is its personnel, and a proper rating of a given department is to be had only on this basis.

Perhaps the first factor to be determined in arriving at such an estimate is to learn the purpose for which the medical service was installed and the department to which it is responsible.

We are not inclined to criticize the firm who takes care of accident cases only and who places the chief stress upon remedy and prophylaxis in the event of injury. The whole program of medical care is an outgrowth of the scheme which made industry responsible for its human toll. The law which makes industry responsible for injury presupposes reasonable measures for prevention and needs but slight extension to include the principle of protection of the employer against unfair claims by means of the necessary examinations to determine the physical status of every man undertaking to handle a given job. The elimination of the unfit is merely incidental to placing the right man on the job and may be regarded as a negative consideration as compared with the possibility of avoiding misfits, with their consequent unrest and inefficiency; for it must be conceded that a policy which properly conserves the interest of industry in the long run serves the interests of the men, and the tendency everywhere is to extend the service once it is embarked upon.

We cannot see that industrial medicine, *per se*, differs in any respect from a complete, coordinated health program in any other community, except in the special factors that may be introduced by economic or working conditions. The great variations to be noted in effectiveness of industrial medical service, then, are to be accounted for in differences of organization and personnel. The vital point, given a satisfactory organization, is the attitude respectively of the industrial physician and of the worker.

The physicians themselves present two extremes—in one category being those who are interested in surgery and whose absorption in the physical methods of diagnosis and handling leave them no time for personality studies and those contacts which make for the happiest relationships between patient and surgeon. These men may be great surgeons; their work may rank with the best, and they are not to be unduly criticized. They belong to the same type as the general or special surgeon who finds a social worker essential as a go-between in his work with his patients.

In the other category fall the surgeons who, with varying degrees of success, undertake personally the organization and administration of medical service, handling directly or referring the work as it arises. The chief advantage of the latter type of organization lies in the personal relations it promotes between the medical department and the men. In the hands of a physician prepared for the exigencies of the work and alive to its requirements, an industrial department so administered may become highly efficient. If at the same time he has a faculty for organization, it may exemplify the best type of group diagnosis and complete medical service.

Aside from professional ability, what seems to be the first requirement on the part of the physician in industrial work is the social outlook. He needs to be in sympathy with the men and to sense their needs. If he is not able to do this, a social worker must be provided to supply the deficiency. A social worker is desirable in any case, for science needs to be interpreted in the simplest terms. The profound ignorance of the general public in matters pertaining to health accounts for much of their apparent indifference to their welfare as well as their suspicion of anything that savors of eleemosynary activity. Only recently it has come to our notice that one patient lay in bed in fear that "the blood would rush from her appendix to her head (as she had been told) and kill her"; and another case was led to believe that the aspiration of the pleural cavity done for him was solely to gratify the interest of the physician in charge. Time and some channel should be provided to offer to the patient sufficient enlightenment about his condition to insure his intelligent cooperation; for in any case there will scarcely be better service than the men themselves desire and cooperate to secure.

S. P. M.

EXPERIENCE OF THE MEDICAL DEPARTMENT AT NITRO, W. VA.*

By J. A. WATKINS, M.D., Medical Officer in Charge, Department of Industrial Medicine and Public Health, University of Cincinnati; Medical Director, Lunkenheimer Company, Cincinnati

IN connection with administrative duties, the medical officer was called upon to be responsible for and supervise work for which few physicians or public health officers have had training. Construction was to be supervised, requisitions and purchases authorized, and suitable storage facilities provided. Pit-falls were hidden therein—the most obscure and dangerous being the inclination to fail to concede the relative degree of importance to the administrative function; hence neglect of its proper supervision, organization, and conduct to a greater or less extent. This occurred in the beginning of the work at Nitro, but fortunately was soon corrected. As a result of this experience a separate division for the conduct of this work was organized. It was found that many persons are careless with public property, and great care was necessary to prevent over-requisitioning, misuse, loss, breakage, or possible theft of property.

Laundry Fully Equipped

The laundries of Charleston were unprepared to perform the volume of work that was suddenly asked of them. Also, because of the isolation of Nitro, owing to the total lack of roads and the inadequate railway service, made it imperative that laundry facilities be afforded. A thoroughly modern laundry was, therefore, constructed and equipped. Adequate laundry service was obtained at all times, and no other division was the source of so much benefit, satisfaction, and pleasure as was this.

The Commissary Department

The commissary department for the plant at Nitro and the food stores and stands were operated by the Van Noy Interstate Company under the general supervision of Mr. Hugh Leighton of New York. The choice of equipment and the food purchases for the medical department were made by this company, as was the general layout of the housing facilities for the kitchens, and storerooms. This organization also assisted in the employment of the personnel. There was operated as a distinct division and under the immediate direction of a medical officer, through a dietitian, a hospital dietary division. The plan, equipment, organization, and conduct of this department differed little from such departments in

*The last installment of an article on the experience of the medical department at Nitro, W. Va., published in successive issues of Modern Medicine, beginning in April, 1920.

Explosives Plant "C"
Area 5, GENERAL HOSPITAL
MATERNITY WARD - LOOKING EAST
No. 928 March 4, 1919.
Graham, Anderson, Probst & White Des'ng Eng'rs
Thompson-Starrett Co., Construction Managers

The maternity ward, looking East, of the General Hospital at Nitro, W. Va., adequately furnished with bedroom furniture.

institutions of similar size and character. I believe the provisions were ample, the equipment modern, and the service satisfactory. The operating cost was high, owing to the price of food and labor.

Transportation Facilities

Transportation facilities, like construction, purchasing, and storage, are apt to be neglected by a medical officer engrossed in purely professional duties. He will be ably assisted in such neglect by mechanics, chauffeurs, and passengers, who feel and demonstrate a lack of responsibility for the use and care of motor vehicles which they do not own. As a result, the department will in a short time find such facilities laid up in the garage and the conduct of routine affairs of the division much handicapped for lack of transportation. The organization and conduct of this work at Nitro was, after disagreeable experiences, developed so as to prevent such occurrences.

A four-bed isolation ward, General Hospital.

It consisted briefly in: (1) Assigning each car to one driver alone. (2) Assigning to each car a certain definite schedule of work. (3) Keeping of individual card records of each car as to hours and character of duty, miles traveled, gas and oil consumed, and date of tires. (4) The thorough inspection by mechanics of each car after tour of duty, with written report of driver. (5) General overhauling of each car at regular intervals, even though in apparent good condition.

Vital Statistics

These statistics, though complete and, I believe, accurate,—for the conditions under which they were collected were satisfactory,—are of doubtful comparative value. Among the factors thus affecting these data are the large population turnover, rather restricted age grouping, unusual class grouping of individuals, direct medical supervision of population, and free and unlimited medical attention.

A view of the kitchen in the isolation ward.

The labor turnover during this period of time was at the rate of 620 per cent per annum, far in excess of that occurring in most industries or urban communities. There could hardly be made a more diversified grouping of individuals of different races, color, education, intelligence, and social status, than that existing at Nitro. Owing to the war, the age grouping of the population was unusual. The direct medical supervision given, together with free and unlimited medical relief, brought to the records many diseases and ailments which under usual conditions do not appear in the vital statistics of most communities. To summarize, the factors influencing these data are such that no direct graphic comparison can be made with fairness, either with those obtaining at army or navy camps in the United States or with urban communities. They are, however, of interest to read in connection with the discussion of those activities carried on at Nitro which were designed to have a direct influence on such statistics.

Data in connection with records of the general population are practically as accurate as those obtained in a military camp. The number of men at work was obtained from the employment offices

The Post-Mortem Room in the mortuary building, Nitro, West Virginia.

and the pay roll department, while the number of their dependents was available from the records of the housing office, which assigned living or sleeping quarters to such Nitro residents. through the examination of employees and also of their dependents, the Medical Department was at all times in close touch and cooperation with the employment and housing officers.

Dispensary Admission Rate

In considering these data it should be borne in mind that medical supervision of the total population, together with free medical relief, probably would tend to bring up the dispensary rate. In addition, it was the policy of the department to encourage dispensary attendance even for complaints considered trivial, as it was the belief that such early medical attention would tend to cut down the hospital admission and non-effective rates. The average dispensary admission rate for the period discussed was 3,560.31 per thousand per annum.

Hospital Admission Rate

The same factors which influence the admission rate obtain here, especially the endeavor on the part of the medical department to hospitalize cases, for, though such action would bring up the hospital rate, it would cut down the non-effective rate, and possibly have an influence on the mortality rate. The hospitalization of infectious cases was for obvious purposes and such action in the majority of cases is not carried out in an urban community. Average hospital admission rate for period discussed was 280.69 per thousand per annum. If influenza patients are excluded from these data the rate is 228.59.

Disease Non-Effective Rate

I believe the non-effective rate is indicative of the influence the activities as carried on by the medical department had in keeping men on the "job." The average non-effective rate for period discussed was 5.5 per thousand. If influenza patients are excluded from these data the rate is 3.4. The mortality curve drawn by weeks drops to zero in a number of instances. The effect of the "Flu" epidemic is evident. The average mortality rate was 16.5 per thousand per annum. If deaths from influenza are excluded from these data the mortality rate is 3.8 per thousand per annum.

THE SURGEON'S PART

The first task of any doctor who becomes attached to an industrial establishment is to break down the mistrust of industrial surgeons, said Dr. F. M. Furlong, before the Fourth Industrial Safety Congress of New York State. This opposition he ascribes to the radical change such service implies from a former régime; the fact that it allows no personal choice of physicians; the fact that advice and treatment given gratuitously are not highly regarded; the opposition of certain local physicians who cater to that class of business; and the prejudice of certain workers who feel that their "rights" are being interfered with. To meet the situation the industrial surgeon needs in addition to his equipment in medicine and surgery the art of handling people—that is, he must be temperamentally fitted for the job.

Facts, not theories, are wanted, and in all compensation cases thorough examination and complete records obviate misunderstandings. The work must be organized so as not to upset the shop in case of an emergency, and frequent investigations should be made of all conditions bearing on the health of employees, sanitation, fatigue, recreation, and food. It has been conclusively proved that those plants which maintain an efficient industrial medical service have had a minimum amount of absenteeism, changes, and losses by illness and injury. The advisability of medical service in industry is not a question of sentiment and not a question of humanity. It is a plain business proposition.

NEED FOR INDUSTRIAL TRAINING AT BRITISH UNIVERSITIES

By Our London Correspondent.

Prof. Ramsey Muir made recently an eloquent appeal in aid of funds for Manchester University and in the course of his address he drew attention to the fact that the Ministry of Health can do little unless the universities are equipped to give a sufficient supply of trained medical men and, what he considered still more important, carry on research on a great scale into the problems of disease and the health reactions of industrial life. How shall the country be prepared for the new age of highly scientific industry, unless the universities have the means of training the men who are required? How will a clear understanding be arrived at on the problems of social and political organization unless these are systematically investigated in the objective spirit of the laboratory?

Not one of these great functions can be adequately performed without the expenditure of very large sums of money; but there are two great claims which make at this moment a peculiar challenge to the attention. Before the war men who wanted to be trained in the methods of research flocked to Germany. They went in hundreds from England, from the Dominion and from America; and it is impossible to overestimate the prestige and influence which Germany derived from this fact. The war has stopped the stream, and men are asking why England should not be able to give this kind of training.

Only £500,000 ($2,500,000) is asked by Manchester University for the purpose of fulfilling this function, and it has not yet been subscribed. The amount is paltry by the side of the sums which are frequently given by the rich men of America to its universities. There are plenty of rich men in this country, but there does not seem to be the public spirit which exists in America, or rather, it may be that the rich men, like the medical profession, have not rightly interpreted the signs of the times.

The people of Great Britain are in many ways very conservative and slow to enter into new paths. Their saving grace is that once they do move, they move with rapidity and efficiency. It is to be hoped that all classes will soon recognize the importance of preventive medicine, and of industrial medicine its most essential branch.

THE MEDICAL DEPARTMENT AT E. W. BLISS COMPANY

By DONALD M. GILDERSLEEVE, Medical Director, Brooklyn, N. Y.

THE Medical Department of this company has existed as such for not more than six years, though there existed prior to that time rather less definite arrangements for the care of injured employees.

With the advent of the Bureau of Workmen's Compensation of the State Industrial Commission, the necessity for very greatly broadened scope and systematization of the medical and surgical work for the company became manifest. Particularly was it essential that the system of recording cases and all the details of each case be such as to place at one's finger tips all the data that might be required, and that it be filed in such manner that ten years later it would be quite as readily available.

System Simplifies the Work

Our first impression was one of dread concerning the amount of red tape that would be required, and at first thought it was regarded as certain that the red tape would complicate rather than simplify the situation. This has not been the case. The matter of system, though requiring considerable care and close attention, has been easily managed, and in the end the various forms have made the work much simpler. For convenience in discussion, the service may be considered under four headings: (1) Personnel and duties; (2) kind and amount of work; (3) forms and records; and (4) general observations.

Personnel and Duties

(a) The department is managed by the medical director, who in addition to general supervision, correspondence, and administrative duties, takes charge of the daily clinic for injured employees and visits at their homes such of the injured employees who are unable to report for treatment, though not requiring hospital care.

(b) Cases requiring hospital care and surgical cases for consultation are referred, as will be described later, to Dr. William M. Ennis, our hospital surgeon and consultant.

(c) All eye cases, whatever their nature, are at once referred to our ophthalmic surgeon, Dr. Joseph L. Behan. Dr. Behan has entire control of all eye cases, in addition to his own personal work, his function includes the supervision of the cases of major and minor eye emergencies in the various emergency rooms.

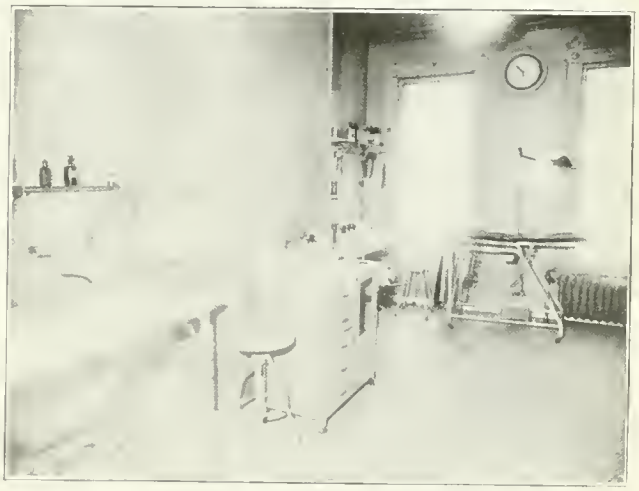
(d) Though not under the control of the medical department, there is an E. W. Bliss Employees' Association, which is conducted by a committee of employees. Cases of illness and injury, exclusive of industrial accidents, among the employees who are members of the Association are treated by Dr. P. A. Renaud, who is paid by the Association. During loss of time from work, due to illness or injury, the members receive six dollars weekly from the Association, and in the event of death one hundred dollars is paid to the next of kin. The company assumes and balances any financial deficit in the accounts of the Association.

The conduct of the Employees' Association rests chiefly with their treasurer, Charles N. Alvarez, who is cashier of the company, and their secretary, Samuel Lewis, one of the senior foremen.

(e) Excluding the plants at Sag Harbor, Paris, and London, as well as the newly acquired plant at Hastings, Mich., and viewing only the works at Brooklyn, which are much the largest, we have four emergency rooms at the present time. Two are in charge of female nurses, and two are intrusted to me. Both of the men's emergency rooms are open day and night, there being a night shift on duty at each. The nurses are women of wide experience and excellent ability, while the men of the department have been recruited exclusively from the hospital corps of the United States Army and Navy. Two of the men served as sergeants with the author, in France, one becoming subsequently sergeant, first class, in charge of the enlisted personnel of the Hospital for Officers, in Paris—Red Cross Military Hospital No. 3. All have had hospital training, and all are thoroughly familiar with the first care in any emergency. By long practice and rather extensive tutelage these men have become highly adept in all manner of surgical dressings that are encountered.

In addition to the nurses and men in charge in the various emergency rooms, there are two clinical assistants and a secretary of the department. The secretary, Mr. Terrell, manages all stenography, typewriting, filing,

The eye work is the direct responsibility of a specialist. Surgical conditions are handled as well as routine tests of vision.



The emergency rooms are equipped with all accessories necessary for the prompt handling of all emergencies.

The office of the medical department is the general clearing house of all the work. All records promptly find their way to the central office.

handling of compensation checks, and other similar work, with the exception of clinic cards, requisition for supplies, and clinic notes. The clinic assistants render assistance in the clinic under the observation and supervision of the medical director, and make up all of our ointments and solutions They maintain direct touch with all telephone inquiries and other desk matters not requiring the personal attention of the medical director.

Kind and Amount of Work

The medical department is divisible into four sections: (a) Administrative and clinical; (b) consultant and hospital; (c) ophthalmological; and (d) first aid or emergency rooms.

(a) All correspondence to the department is promptly placed before the medical director, and all outgoing correspondence is dictated by him. All reports—C-2, C-4, and special—are reviewed and signed by him, with the exception of the C-69, which is written by the eye or ear specialist. The methods employed in making, filing, and using all reports and papers are devised and controlled by the medical director.

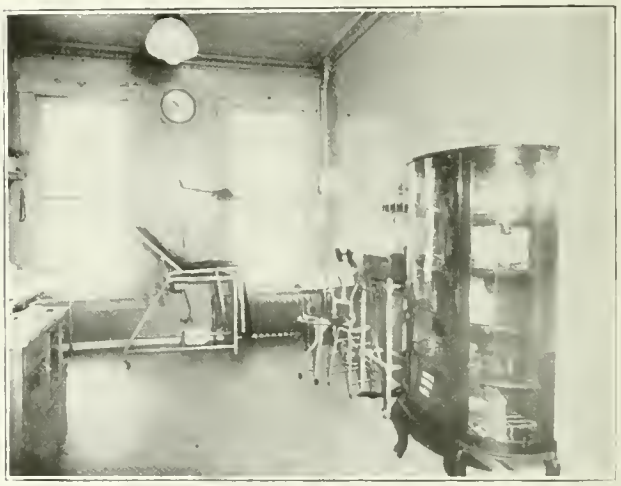
Let us follow the case of Mr. John Doe, who has just sustained a very severe contusion of the dorsal surface of the right foot, at the first metatarso phalangeal articulation. He first reaches the nearest emergency room, where he is given first-aid treatment. While he is there, the emergency man fills out a first draft of the C-2 report, which is the employer's report of injury. The man's shop number, name, address, and injury, together with the disposition of the case, are noted on Form 397 (Fig. 1). The case being of sufficient severity to warrant the personal services of the writer, word is sent to the medical department office and the medical director goes to the emergency room and examines and treats the patient, who is now sent in the medical department automobile to our radiographer, Dr. M. G. Wasch, and thence to his home, where he is treated until he is able to come to the clinic for treatment. He is then referred to the clinic with a clinic pass (Form 426, Fig. 2). In cases sent from emergency rooms directly to the clinic the patient receives this pass from the emergency man.

On the occasion of his first visit to the clinic, his name, shop number, and diagnosis are entered on a Form 347 (Fig. 3). Any further note as to findings or disposition of the case are also entered thereon, under the appropriate date. Instructions given to the patient relative to further appearance at the clinic are likewise recorded. On the occasion of each visit thereafter an entry is made upon the same card to the end that, finally, this card will present a complete record of the man's visits at the clinic. In cases in which an initial clinic record is made, and subsequent home visits take place, such visits are recorded in like manner. Also, record is made on Form 347 of every examination and treatment given personally by the writer in any one of the emergency rooms.

When the patient is entirely recovered, or when his recovery is sufficiently complete to render judicious and possible his return to work, he is sent back to work and, excepting permanent disabilities, his case closed with the insurance carrier.

Records in Hospital Work

Any case sent to our ward in St. Peter's Hospital bears a record on Form 350 (Fig. 4). This is filled out as far as the date of discharge. When the patient leaves the hospital, the date of discharge, diagnosis, and remarks are completed and signed by Dr. Ennis, and the card is



The equipment of the treatment rooms is complete and always in readiness.

returned to the office of the medical department. An initialed copy of this record is sent to the secretary and treasurer of the company, and the original is filed with the other records of the case.

It is not within our province here to discuss the state forms in detail. The C-2 forms are made out by the emergency men, reviewed by a clinical assistant, transcribed by the secretary of the department, and then presented promptly to the medical director for final review and signature. We find very few corrections to be made.

In cases requiring more than two weeks' absence from work a C-4 physician's report is executed and a synopsis recorded on Form 389 for our files. In the case of the C-2 reports carbon copies are retained. We do not retain copies of C-11 and C-111, as the data are all entered elsewhere in our records of any case. The event of a patient returning to work is noted in red on our copy of the C-2 for cross reference. This applies also to the date of admission and the date of discharge of any hospital case.

The clinic is thoroughly equipped in the most up-to-date manner. A great number of fractures are met with, as well as the customary burns, contusions, lacerations and sprains. Cases requiring violet ray, thermotherapy, and

massage have expert attention under the supervision of the medical director.

Initial Physical Examination

The physical examination of new employees is conducted by the medical director. On his first day with the company, the employee receives at the employment office a card, Form 498, both sides of which are shown in Figs. 6a and 6b. The scope of the examination is shown in Figs. 7 and 8 (Forms 497 and 402). The form shown in Fig. 7 is the one used in Brooklyn, while that delineated in Fig. 8 is the one employed at our Sag Harbor works, the Torpedo Testing Station. The difference in requirements explains the difference in forms. On the reverse side of Form 497 are recorded the vision tests, which include:

Vision, O. D. and O. S.—with applicant's lenses.
Vision, O. D. and O. S.—uncorrected.
Binocular, distance.
Binocular, Jaeger.

Records of our physical examinations at Brooklyn are

Space, light and general installation are entirely adequate for the needs of the work. Daily clinics are held. The personnel includes consultants in the several specialties.

entered on Form 496 (Fig. 9). These sheets are kept in a loose-leaf post binder.

Figs. 10 and 11 show the forms used in our monthly and annual statistical reports. A copy of each is invariably sent forward to the secretary and treasurer of the company, to whom the medical director is responsible, while the originals are kept in a loose-leaf post binder, in chronological sequence, an annual report following immediately after a December report.

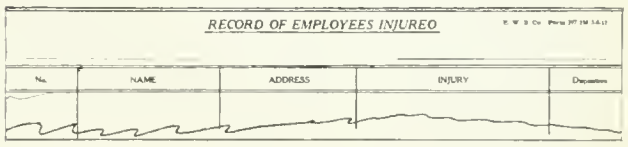
Analysis of the first one thousand physical examinations, the examinations having been introduced less than a year ago, shows that 96 per cent were accepted. A number of cases of trachoma were found, as well as various valvular diseases of the heart, hernias, varicose veins and ulcers, pulmonary tuberculosis, and deformities. While the physical examination is a very good thing for the company, it has proved a still better proposition for the man himself. With labor conditions as they are at present, it is not always easy to make the employees see that, however.

(b) The surgical cases for consultation or for hospital treatment are referred to Dr. W. M. Ennis, who is retained by the company on a salary basis, as are Drs. Behan, Wasch, and the author. In addition to the hospital cases, which constitute a relatively small number, Dr. Ennis

Dressings and minor treatments are handled in emergency rooms in close proximity to the work, which saves time and insures care of the lesser conditions.

sees at his office an occasional case that is sent to him for examination and opinion, and in some cases for treatment. A case presenting some unusually complex condition which in general work would require a consultation, is seen by the doctor, who submits a report to the medical director. A type of case occasionally met with, and referred to Dr. Ennis for examination, is that of the patient who has some pathological condition not due to any industrial accident, but which he wishes us to believe is due to such cause. Among these are the venereal cases "due (?) to heavy lifting," a case of Hodgkin's Disease attributed to similar cause; old fractures claimed as due to recent injury; or epithelioma held to be caused by the entry of a steel chip, *et cetera*. In such cases it is always better to have two professional opinions on file in the case folder. The consulting surgeon in such cases renders a weekly report to the medical director. These reports are kept in a special file, for ready reference. As soon as the condition of any patient so referred warrants return to the clinic, he is referred back for appearance at the next clinic hour.

During 1919 there were only sixty-three hospital cases. These included several very severe compound fractures, several multiple fractures, hernias of various type and degree, and traumatic amputations, as well as several se-


RECORD OF EMPLOYEES INJUREO

No.	NAME	ADDRESS	INJURY	Disposition

Fig. 1. A summarized record is kept of serially numbered cases of injuries treated, from which one can tell at a glance what constituted the day's work.

rious cases of head injury, such as compound fracture of the vault, fracture at the base, and chronic cerebral edema. Two cases of real traumatic neurosis were encountered. There were several highly interesting injuries in which very fine results were achieved, but a full discussion of such cases is rather without the province of this article

TEL SUNSET 4964 10-to-11-Daily

E. W. BLISS CO.,
CLINIC.
74-A-54TH ST., BROOKLYN.

Name _____ No. _____

Address _____

C. 2.—Made out by _____

Date sent to Clinic _____

CLINIC PASS Form No. 426. 5m 6-15-17

Fig. 2. The form of clinic pass which an employee must bear to show that he has been assigned for treatment.

and it is hoped that Dr. Ennis will himself make this report later.

(c) All but the most trivial eye cases are referred to

Form 347 5M 9-20-16

RECORD OF _____

E. W. BLISS CO., MEDICAL DEPARTMENT SHOP No. _____

Fig. 3. The card showing first admittance to the clinic bears reference to identification and diagnostic records.

E. W. B Co. Form 350 12-16-18

RETURN THIS CARD TO

E. W. BLISS CO.
MEDICAL DEPT.
54TH STREET, BROOKLYN

HOSPITAL RECORD

Name _____ *No.* _____

Hospital _____

Admitted _____

Discharged _____

Diagnosis _____

Remarks _____

Signature _____

Fig. 4. The form of the hospital record, when completed, is a fairly clear index of the treatment received.

Dr. Behan, our ophthalmologist, who holds an eye clinic three times a week at the medical department in addition to receiving patients at his afternoon office hour. Dr. Behan controls the work of the emergency men in so far as eye emergencies are concerned, and in appropriate cases controls through the emergency men, subsequent care of eye cases between their visits to his clinic or office. This applies to the use of certain eye drops, ophthalmic ointments or other applications, and in this manner the best cooperation of the patients is secured.

Dr. Behan advises relative to such safety or preventive measures as are in his judgment indicated, and also gives counsel regarding arrangement and character of lighting. In addition, he makes such diagnostic eye examinations as may be required.

Very few of our eye cases have required hospital care; but those requiring hospitalization are sent to the Long Island College Hospital, on the service of Dr. Behan. Several of these cases are of outstanding interest, but to report them here would be to digress from our theme in hand.

Emergency Room Equipment

(*d*) Complete equipment of all dressing materials, instruments, and accessories requisite for the successful handling of all emergencies is always available for the minor initial medical treatment of employees when required, and much loss of time is thereby prevented. The nurse or senior man of each emergency room submits to the medical department office each Monday morning a properly prepared requisition for supplies. This list is then reviewed by the medical director, revised if necessary, and turned over to Mr. Hutty, whose function it is to prepare the lots for transfer to the emergency rooms.

Thorough instruction and considerable experience have

Form 498 5M 5-19-19

E. W. Bliss Company

Mr. _____ is sent to the Medical Department for physical examination, with a view toward his employment in this Company.

Remarks: _____

Dated George Wasmuth, Employment Agent.

_____ Per _____

Fig. 6a. This card is issued by the Employment Office when on a man's first day with the company.

EXAMINATION NOTICE

Before you are assigned to work in this Company, you will be examined by a physician. Report for this examination at the Medical Department, E. W. Bliss Co., No. 74 54th Street **at 1:30 P. M.,** to-day, tomorrow.

It is necessary that you report promptly for examination, thus avoiding confusion and delay. **Be prepared** to pass your **urine** when you report at the Medical Department.

E. W. BLISS CO.

Fig. 6b. Card admitting to physical examination prior to employment.

Physical Examination Record

No Date

Name

Address

Age Thorax, Normal Shape? Heart

Height " Expanded Lungs

Weight " Contracted Urine

Vision Gait and Extremities Hernia

Hearing Evidence of Previous Injury

Remarks:

Accepted or Rejected

DONALD M. GILDERSLEEVE, M. D.
MEDICAL DIRECTOR

Per:

E. W. Bliss Co. Form 497 3500-3-20-19

Fig. 7. The physical examination is fairly comprehensive. The vision record is on the reverse side of this card.

resulted in a thorough knowledge on the part of those stationed in the emergency rooms of when to send a man immediately to the hospital; which cases should be sent home; which should be at once sent for radiographic examination prior to examination by the medical director, and which cases require the immediate attention of the medical director. Further, they are well acquainted with all of the "don'ts" relative to treatment and other matters. A pass issued by an emergency man or nurse is honored, without further process.

The forms which are used in the emergency room work have already been discussed. Those concerned readily appreciate the importance of an accurate and prompt execution of these forms, and no trouble is experienced by the office in this connection. An occasional bulletin is issued to all of the emergency rooms, and frequent inspections are made; in the main, however, very little correction is found necessary.

In the absence of the medical director the emergency rooms are under the control of Mr. Lamberson. Mr. Lamberson, from time to time, also receives instructions for transmission to the emergency rooms. General orders are kept on file also in the medical department office in such manner that they may be readily consulted should occasion require.

Necessary Forms and Records

Most of the forms used have been mentioned. Several others, of less importance in this discussion, include a medicine envelope; forms concerned with the requisition, purchase, receipt, and disbursement of supplies; a special voucher for reimbursement of carfare to an injured employee; prescription pads; special labels; and correspondence stationery. Upon discharging a case, the completed records are filed together in a folder, with the file of closed cases. Only records in "live" cases are kept in the several special record files.

A careful record of checks issued in payment to injured employees is kept. These checks are sent to our office by the insurance carrier and, immediately upon their receipt by us, entry is made in Mr. Terrell's lists. This covers the date of issuance and date of our receipt of the check; its number; the amount; the name of the payee; his case number, and the period for which it pays the compensation. This entry is checked off when the draft is turned over to the patient, date of delivery being noted.

General Observations

Division of the work of the physicians in the manner above outlined yields most satisfactory results. Only one full time surgeon is required. There is a minimum of conflict between several duties each of which requiring prompt performance. The interests of the patient are protected in the fullest measure. Expense to the company is very moderate, considering the nature and amount of work accomplished.

This work offers one a remarkable opportunity for the study of human nature among the workingmen. Of course, all types and all kinds of situations are met with,

E. W. BLISS CO. No. 403
Medical Department

PHYSICAL EXAMINATION RECORD

Date

Name

Address

Age
Height
Weight
Thorax, Normal
Expnd
Cotrd
Heart
Lungs
Nutrition
Significant Factors in Family History
Significant Factors in Personal History

Special Senses
Evidences of Previous Injury
Urine Analysis:
Color
Sp. Gr
Reaction
Albumen
Sugar
Indican
Sediment:
Remarks:
Approved / Rejected } Date

Med Dir., E. W. Bliss Co.

E. W. B. Co. Form 402 3M 1-30-17.

Fig. 8. A form for physical examination which includes the specific requirements in certain assignments.

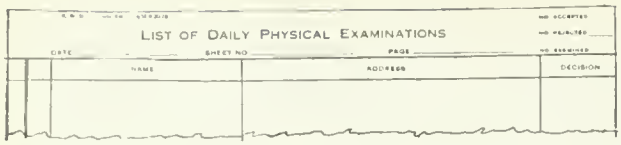


Fig. 9. A summarized list of the daily physical examinations is kept in a loose leaf binder for ready reference.

some highly disconcerting, while others are humorous. On the whole, the great majority of the workers are reasonable, good-willed men, whose sole desires in connection with their injuries consist of securing cure of the injury, payment of such compensation as is provided by law, and early return to work. We have, on the other hand, been regarded unfavorably for not having cured epithelioma in three days; for one or two infections in patients failing

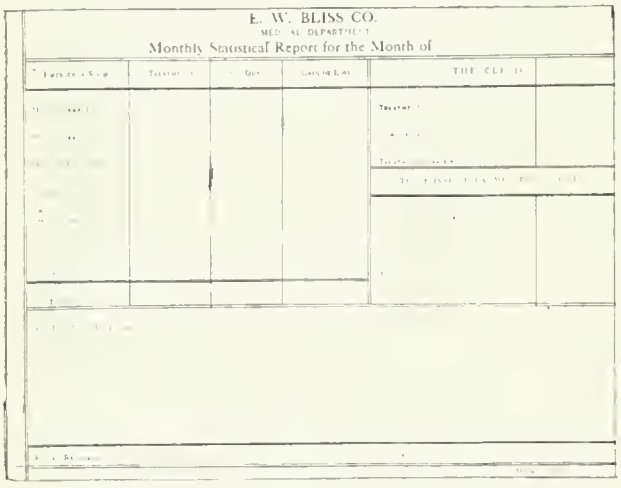


Fig. 10 The data obtained from the daily sheets are compiled in the monthly statistical report.

to report for treatment; and for not having consented to engage an eminent surgeon to perform an operation that our surgeon could perform quite as well. To get the best results, in many respects it is necessary to meet these men and women—we do not employ a great many at this writing—with tact and diplomacy. Both kindness and firmness are absolutely essential. Everything possible should

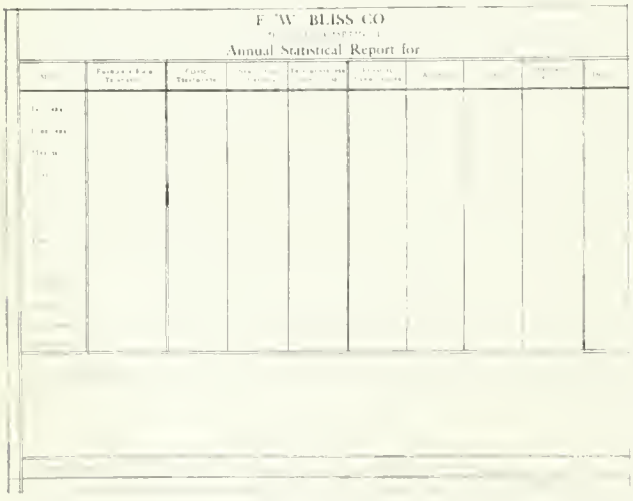


Fig. 11. The annual reports bring together in tabulated form all essential features of the work accomplished by the medical department.

be done to maintain the patient's morale, his self-respect, and anything that can be fairly and consistently granted in the direction of compliance with any special wish should be done. He must be made to see that your interest rests wholly in his welfare, without, however, for a moment countenancing in any way anything distinctly unreasonable. The patient should have the benefit of any doubt, but the "doubt" should be cleared up as speedily as may be. Everyone in the department can aid materially in improving or maintaining properly the psychology of the employees and this is, as we are coming to realize more and more, a very important matter.

One must guard against being too automatic in this work. The treatment of many hundreds of similar cases tends to refer too much of our activity to the cord, rather than to the cerebral cortex. We must be ever watchfully on the lookout for the exceptions. These are the most important of all, requiring special treatment and diagnostic measures. These exceptions are not as exceptionally exceptional as one might suppose.

In the course of the past six years we have built up a very full library of radiograph pictures. Virtually every bone in the body is represented fractured in various ways. We find that it is possible in a large proportion of cases to diagnose incomplete fractures by a very careful examination as to exact area and degree of tenderness. There is nothing magical, nothing clairvoyant, about this; it is far from infallible, but it does give correct results in a large majority of cases, as radiographic examinations have proved.

It follows that our treatments have become, within judicious limits, more or less standardized. In certain types of injury we have developed special forms of treatment; but in the main the treatments are quite orthodox in their conformity with generally approved therapy.

INDUSTRIAL NURSES ORGANIZE

Are you an industrial nurse? Are you interested in industrial nursing? Are you an employer of labor? Are you interested in industry? If you are, do you belong to the Industrial Nursing Section of the National Organization for Public Health Nursing?

An Industrial Section of the National Organization for Public Health Nursing was formed at Atlanta, Ga., April 10, 1920. The By-Laws state: (1) The object of this Section shall be to stimulate interest in the special problems of the industrial nurse and to provide a forum for the discussion of such problems. (2) Any member of the National Organization for Public Health Nursing may become a member of this Section by sending her name to the secretary of the Section for enrollment as a member.

Employers are eligible to membership in the National Organization for Public Health Nursing, and if they become members they may join the Section.

Nurses registered at the Atlanta convention may join. If you would like to become a member, join the National Organization for Public Health Nursing. A subscription to *The Public Health Nurse* is included in membership. This is the only magazine devoted exclusively to the subject of public health nursing.

The National Organization for Public Health Nursing serves the employer as well as the nurse in industry. From its central library and forty-four state library centers literature on the subject of public health nursing may be obtained. Nurses desiring to register are requested to send their names to Florence Swift Wright, chairman, Industrial Nursing Sec., Nat. Organization for Public Health Nursing, 156 Fifth Ave., New York City.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

SOME ACCOMPLISHMENTS OF THE PAST

IT IS doubtful if even the professional public health worker always realizes fully how considerable have been the concrete accomplishments of sanitary science during the past two decades. It may contribute to a more confident and aggressive prosecution of the public health campaign to review the statistical record as it concerns a few of the diseases which have lent themselves most readily to practical measures of control.

The death rate from typhoid fever in the Registration Area has been reduced from 35.9 per 100,000 to 13.4 per 100,000 in 1917; the death rate from diphtheria and croup has been reduced from 43.3 per 100,000 in 1900 to 16.5 in 1917; the death rate from diarrhea and enteritis has been reduced from 133.2 in 1900 to 64.0 in 1917; while the death rate from tuberculosis has fallen in the corresponding period from 201.9 to 128.9.

We have thus a reduction, in less than twenty years, of more than 22 points per 100,000 for typhoid fever, of more than 26 points for diphtheria, of more than 69 points for diarrhea and of 73 points for tuberculosis—a total of 190 points in all. This means a saving of approximately 200,000 lives a year in the United States as a whole.

In other words, the reduction in these four diseases is saving to this nation *every year* more lives than were lost by our Expeditionary Forces in all the battles of the late war.

The Promise for the Future

The prospects for the future are so bright as to warrant a confident hope of even greater triumphs than have been won in the past. The causes of infant mortality which operate before birth, at birth, and during the first month of life are only just beginning to be attacked by prenatal medical and nursing care. The problems of nutrition are for the first time being dealt with in definite and organized fashion. The campaign against tuberculosis promises to take on new life and vigor. The campaign against venereal disease has only been initiated on any broad and effective scale during the past two years. Malaria and hookworm disease have been proved to be definitely controllable; but they have actually been controlled only in restricted areas. Diphtheria antitoxin has not yet accomplished the results which it is capable of yielding; and pneumonia serum has been scarcely used at all. Cancer should prove as amenable as tuberculosis to an organized effort for education, early diagnosis and prompt treatment—in this case surgical in nature; while the potency of hygienic education and systematic medical examination of the supposedly well promises tangible results in the reduction of the degenerative diseases of adult life.

It will be even more true in the future than in the past that "Public health is purchasable," and that "within natural limitations any community can determine its own death rate."

The Principal Obstacle to Progress

Such are the brilliant possibilities of the modern public health campaign. The public fully appreciates these possibilities and is generally willing and eager to provide the resources which are needed for a far reaching offensive against preventable disease. The factor which more than any other condition holds us back today is the lack of personnel.

Cities on every hand are ready to adopt a comprehensive public health program; but they cannot find properly qualified and inherently able health officers. Towns by the score are waiting months to secure trained public nurses. Health center plans are held in abeyance and existing infant welfare clinics are cutting down their work because men and women cannot be found to do the work. Delay and discouragement, or the still more serious setback that follows the attempt to operate with incompetent and untrained personnel,—these are the stumbling blocks in the path of the new public health.

Meanwhile, even our leading schools of public health are turning out a dozen graduates a year when the demand calls for hundreds. Even the discharge from the army of hundreds of newly trained bacteriologists did not for a moment produce a glut in the market. Students who have taken the Doctorate in Public Health or the Doctorate in Philosophy in Public Health have had half a dozen positions each to choose from at three to five thousand dollars a year.

The appeal must be made boldly and unceasingly to the college graduates of the country that they may come in increasing numbers into this field which lies fallow for the harvest. A one year course for the Certificate in Public Health, or a three years' course for the Doctorate, will open the door to a career full of public usefulness and personal satisfaction. The greatest emphasis, however, is to be placed upon the fact that we need young medical graduates who may catch the vision of community service, and fit themselves by one or two years of post-graduate study for the profession of public health. There is need for men in clinical medicine, there is need for men in the laboratory, but there is an even greater need for men of the right type to lead in the organization of the greatly expanded state health service which must develop in the coming year.

EDITOR.

THE PUBLIC HEALTH CENTER OF ALAMEDA COUNTY

By MISS ANNIE FLORENCE BROWN, Member Executive Committee, the Public Health Center, Oakland, Calif.

FOREMOST among the many lessons America has derived from our recent war stands the importance of the development of public health. Attention has been called to the health of our Nation by the fact that 35 per cent of America's young men of draft age were rejected from military service by our first physical examination; an additional 15 per cent were returned home after entering the training camps. This shows that approximately one-half of America's youth were found physically unfit for war service at the time of the Republic's greatest need.

From all sides has come the question: "What can be done to remedy this condition?" The best answer to this is: *"That the only protection of individual health is through community public health."*

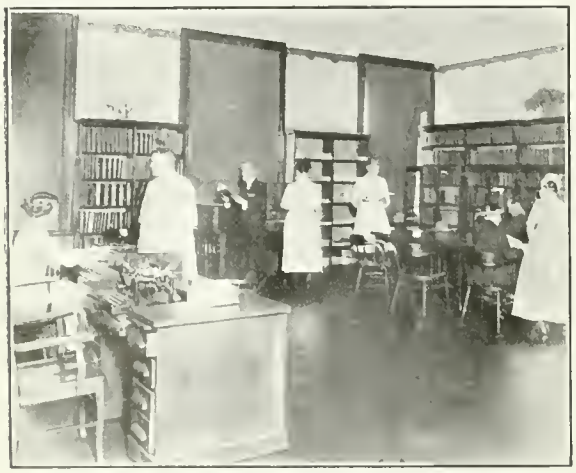
The building of the Public Health Center of Alameda County, situated in Oakland, Calif.

Health Centers a New Development

The most logical means of continuing the progress made in public health during the period of the war is the coordination of forces promoting public health and developing them into the modern institution known as the Public Health Center.

The war psychology that inspired large groups in community service during the years 1917 and 1918 is now being utilized for community health service.

The Public Health Center is an organization which consolidates, administers, and increases the efficiency of public health, relief, welfare, and charitable work in the community. This is done by: (1) The consolidation, maintenance, and improvement of public clinics of all kinds; (2) the installation for their use of complete scientific laboratories; (3) the conducting of popular education in hygiene and sanitation; and (4) the elimination of duplication and overlapping of effort in the field of community service by coordinating relief and social service agencies through the maintenance of a central clearing house or confidential exchange.



Patients waiting for admission to the Social Service Department, Public Health Center of Alameda County.

Origin of Alameda County Health Center

Three factors were foremost in the minds of those who were present at the initial meeting held in Oakland, Calif., in 1918, for the organization of the Alameda County Public Health Center. They were (1) the need for better health instruction in our public schools; (2) the establishment of adequate dispensaries in the community; and (3) the coordination of existing public health organizations in the county, chief among which was the Anti-Tuberculosis Association, which had been well established for a decade.

Patients waiting at admission desk. Day and evening clinics are maintained.

In June, 1918, a preliminary meeting, called for the purpose of organizing, was attended by the following persons: Mr. Fred M. Hunter, superintendent of schools of Oakland; Dr. Howard Morrow, clinical professor of dermatology, University of California Medical School; Dr. William E. Musgrave, director of hospitals, University of California; the late Dr. A. S. Kelly, then president of the Board of Education of Oakland; Miss Ethel Moore, president department of recreation of Oakland; Mrs. F. C. Turner, chairman of Alameda County Women's Committee of the State Council of Defense, and Miss Annie Florence Brown, former president of the Oakland Board of Education and secretary of the Alameda County Anti-

The Center operates a children's dental clinic where hygienists work with full-time dentists.

Tuberculosis Society. As a result of this meeting it was determined to urge that the health work of the public schools of Oakland and Berkeley, together with the work of the Anti-Tuberculosis Society of Alameda County, be placed under the direction of the proposed Health Center, which should be supervised by a director professionally trained in public health. The organization of the proposed new Health Center was outlined as set forth in Chart I.

It was further determined at this meeting to develop the Health Center under the direction of an advisory committee. The object of an Advisory Committee was three-fold: To avail the Health Center of scientific advice on technical subjects; to assure permanency and continuity of policy; and to relieve an institution local in its work from any cross currents of a purely local nature. The natural source of the personnel of this Committee was from the faculty of the State University. A presentation to the Board of Regents of the University of California of the plan of organization and operation of the proposed Health Center resulted in the appointment from the faculty of the Medical School and Department of Economics of the University of the following Advisory Committee: Dr. Herbert C. Moffitt, dean of the Medical School; Dr. Howard Morrow, clinical professor of dermatology; Dr. William E. Musgrave, director of hospitals; Dr. Jessica Piexetto, professor of social economics, and Miss Lucy Stebbins, assistant professor of social economics, all of the University of California.

Upon the appointment of the Advisory Committee each of the agencies in Alameda County performing health, relief, and welfare work was invited to send two representatives—one a professionally trained worker, the other a non-professional representative, to hold membership in and join in organizing the Board of Governors. Official representatives were sent from: Ten hospitals and dispensaries, ten relief organizations, two educational institutions, four public school systems, three chambers of commerce, six public welfare organizations, two probation boards, two labor organizations, four health departments, one bureau of occupations, the Alameda County Medical Association, the Alameda County Dental Association, the Alameda County Nurses' Association, and the Alameda County Psychopathic Association.

At this first meeting of the Board of Governors a Constitution was adopted defining the duties of delegates and vesting in the Board of Governors certain power to deal with questions of general policy. The Constitution sets forth the basis of organization. It is printed herewith.

Constitution of the Health Center

Article I

Name.—The name of this organization shall be "The Public Health Center of Alameda County."

Article II

Purpose of Organization.—The purpose of this Health Center shall be the affiliation in one centralized organization of such social agencies in Alameda County performing health, relief, and welfare work as may desire to become members, and by the coordination of the work of these agencies to avoid duplication of effort, to increase efficiency in administration and to bring about more widespread education in preventive medicine.

Article III

Membership.—The membership of this Health Center shall consist of such organized agencies engaged in health, relief and welfare work in Alameda County as shall subscribe to the principles thereof.

There shall also be contributing members, consisting of annual and life members, without votes. Annual members shall be those who pay annual dues of Five Dollars; life members shall be those who pay not less than One Hundred Dollars.

Article IV

Board of Governors.—The Board of Governors shall constitute the governing body of this Health Center, which said Board shall be composed of representatives from the several agencies having membership therein, each agency electing one representative, except that where such agency has a professional executive it shall be entitled to two representatives. One shall be selected by such agency from its non-professional members, and the second shall be its professional executive.

The members of this Board shall hold office for one year and thereafter until their successors are elected.

Nine members shall constitute a quorum.

The Board of Governors shall deal with all questions of general policy and management of the Health Center, and shall have full control thereof, save as the same is hereafter vested in the Executive Committee and in the Advisory Committee.

Article V

Executive Committee.—There shall be an Executive Committee consisting of seven members elected by the Board of Governors, with the advice of the Advisory Committee.

The Executive Committee shall be the administrative body of the Health Center and shall control the finances thereof and shall exercise such power as is usually exercised by Boards of Directors, subject to the powers herein expressly given to the Board of Governors and to the Advisory Committee.

The members of the Executive Committee shall serve for four years; provided, however, that the Committee

The children's recovery room was furnished by the pupils of the "Rainbow Club," University High School, Oakland, Calif.

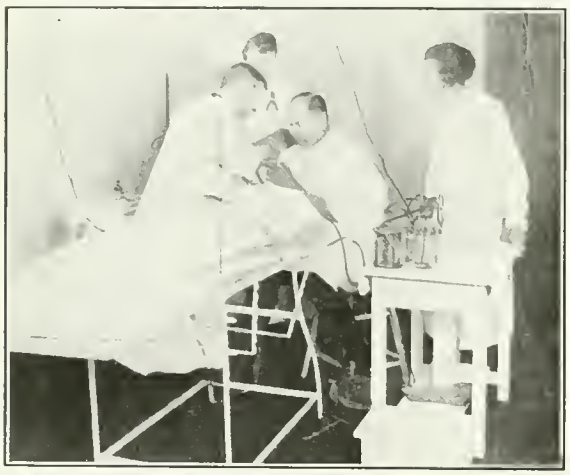
as first constituted shall choose by lot two of their number to serve for one year, two of their number to serve for two years, two of their number to serve for three years, and one of their number to serve for four years. Thereafter as new members are appointed each shall serve for a period of four years.

ARTICLE VI

Advisory Committee.—There shall be an Advisory Committee appointed by the Regents of the University of California from the faculty of said University. The majority of this Committee shall be members of the faculty of the Medical School of the University of California. This Committee shall act in an advisory capacity to the Executive Committee on all questions affecting the work of the Center; and the selection of the Director of the Center and heads of departments shall be made only by the advice and with the consent of the Advisory Committee.

ARTICLE VII

Director of the Center.—There shall be a Director of the Center appointed by the Executive Committee. The Director shall be the Executive Officer of the Center, and shall direct the several officers, departments and branches



A tonsil operation under way at the Public Health Center of Alameda County, Oakland, Calif.

of the Center. Heads of departments and all officers of the Center subordinate to him shall be chosen only upon his recommendation with the approval of the Advisory Committee. He shall exercise such other powers as shall be conferred upon him by the Executive Committee.

ARTICLE VIII

Amendments.—This Constitution or the By-Laws of this Center may be amended by a two-thirds vote of those present at a regular or special meeting of the Board of Governors; provided, that written notice of such proposed amendment shall have been previously given by mail to each member of the Board of Governors at his last known address at least forty-eight hours prior to the time of such meeting.

Judge Chas. E. Snook, president of the Alameda County Anti-Tuberculosis Society, was elected chairman of the Board of Governors.

Details of administration are left to the Executive Committee of seven members elected by the Board of Governors. Mr. Harrison S. Robinson was elected chairman of the Executive Committee.

The Executive Committee, working in conjunction with the Advisory Committee, selected as director of the Public Health Center of Alameda County, Dr. Richard A. Bolt, formerly chief of the Bureau of Child Hygiene of Cleveland, O.

After being with the Health Center for six months, during its organization period, Dr. Bolt was called to Washington, D. C., to fill the position of general director of the American Child Hygiene Association. This vacancy was immediately filled by Dr. Alvin Powell, a graduate of the Medical School of the University of California, who, after a number of years of successful practice, gained a reputation for medical organization while acting as Lieutenant Colonel for Mobile Unit Number 1 which rendered operative service in France during our late war.

Temporary Health Center Building

The main Health Center is temporarily housed in a building at one time owned and occupied by the former Oakland College of Medicine. Here had been conducted for more than twenty years various clinics, both medical and dental, by a group of public spirited physicians who contributed not only their time, but also the funds for maintaining same. In a most generous and progressive spirit this Medical College presented the site, building, and equipment to the Public Health Center.

The Alameda County Medical Association has its headquarters in the Health Center building and has located therein its medical library and trained librarian. This medical library forms a nucleus from which will develop the educational work in hygiene, sanitation, and preventive medicine.

At present thirteen different clinics are being conducted in this building under the supervision of the Health Center.

Method of Operating Clinics

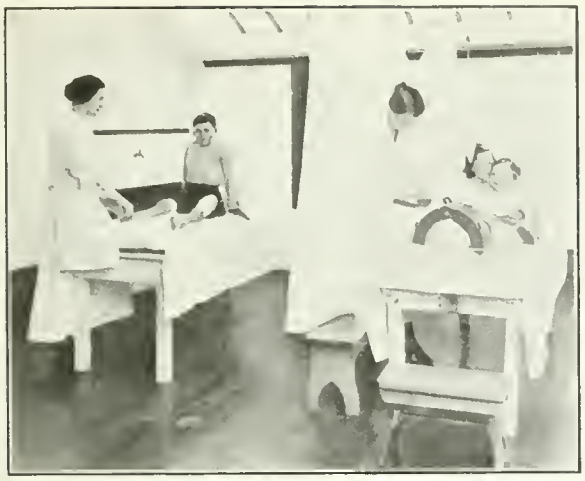
Invitations were issued to all members of the Alameda County Medical Society asking their cooperation and requesting them to state in what department of medicine they desired to work. These invitations met with unanimous acceptance. Clinical committees have been organized from the physicians of Alameda County. The staff is divided into a Consulting Staff and a Clinical Staff. Each clinic is under a chief from the Consultant Staff assisted by a sub-chief from the Clinical Staff.

Although clinics are operated mainly for school children, a full line of clinics is also maintained for adults. Persons occupied during the day by business and industry are

Medical Library in Public Health Center of Alameda County. Situated in Oakland, it has a very definite function as at present operated, and is the nucleus of a valuable public health library.

served at night clinics. Admission to these clinics is not entirely free, as a fee of twenty-five cents is charged each patient at entrance with a ten cent charge for all subsequent visits. Treatment at night clinics, however, carries a charge of fifty cents and one dollar.

Before admission to a clinic, a careful examination of



The gymnasium provides corrective exercises and helps create an enthusiasm for health.

The scientific laboratory serves both consultant and clinical staffs, and is always available.

each case is made by a well organized social service department (Chart II).

As each case leaves the Health Center it is carefully followed up by the Department of Social Service. A number of large hospitals in our community have turned over their social service work to the Health Center. The new County Hospital now under construction plans to have all admission of the patients through the Social Service Department of the Health Center.

In connection with this department there is being de-

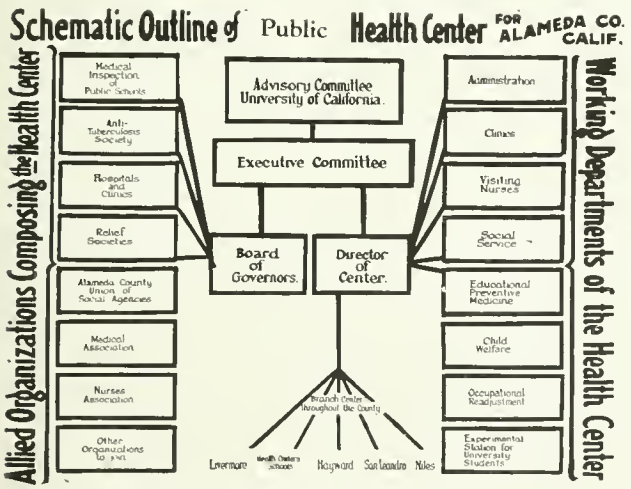


Chart I. The organization of the Health Center brought together the several agencies already in the field and rounded out the departments for complete health service.

veloped a clearing house or confidential exchange for clinical, nursing, and social service activities for other agencies in Alameda County as well as for the Health Center. A uniformity of record system and organization will thus coordinate the social service work of the county.

Main Health Center Building

A site covering a city block located at the civic center of our community has already been purchased. An active campaign is now being conducted under the chairmanship of Dr. Daniel Crosby, former health officer of Oakland, for a fund of $100,000 for a modern building.

The plans for this proposed building contemplate a two-story U-shaped structure with a central court. On the first floor will be the lobby, waiting rooms, and administrative offices. In one wing will be located rooms for dental, medical, surgical, and orthopedic clinics. Separate clinics will be provided for tuberculosis, with special waiting rooms for men and women. Adjacent to this clinic will be the executive offices of the Alameda County Tuberculosis Society.

The opposite wing of the building will be devoted to clinics for school children. In this wing will also be found the administrative offices for the health development work of the public schools, including offices for the public school nurses. This department will be maintained largely by school funds.

An important feature of the new Health Center building will be the large modern dental clinic and dental laboratories, where dental hygienists will work in conjunction with full time dentists in preventive dentistry as well as in actual dental operations.

On the second floor will be located the library and meeting place for the Medical Association of Alameda County. On the same floor lecture halls well equipped with stereopticon and moving picture apparatus will afford ample opportunity for popular lectures on public health, hygiene, and sanitation. During the day hours will be given talks to all the grades of school children. The evenings will be utilized for lectures to adults engaged in industries during the day.

Provision is being made for a department of dietetics

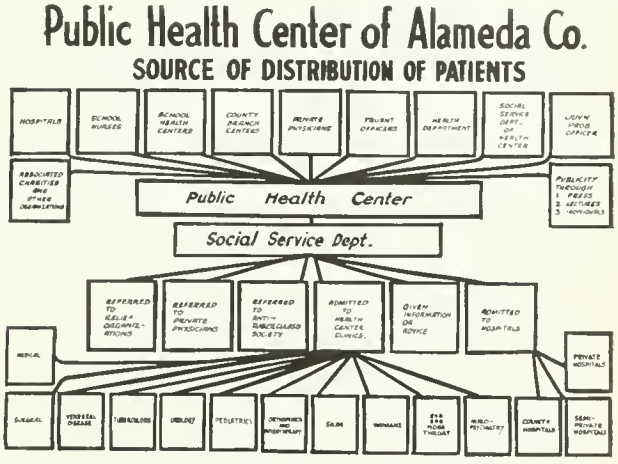


Chart II. Although operated mainly for children, full clinical provision is made for adults, open in the evening as well as in the daytime.

where instruction will be given to mothers in the value of different foods for children as well as for the sick.

Branch Health Centers

Although the main Health Center is situated in Oakland, a city of 216,361 population, the largest city in Alameda County; Berkeley, the seat of the State University, with population of 55,868, has also its Health Center which has developed from a well organized institution known as the Berkeley Dispensary. Soon Alameda, one of the sites proposed for the Pacific Coast Naval Base, with a population of 28,806, will also have its Health Center.

Numerous small towns remote from the populous districts in Alameda County have called upon the main Health Center for supervision in establishing Branch Health Centers. A number of these are now in operation, one in San Leandro, a town of 4,500 population; another at Hayward, population 4,000; a third at Niles,

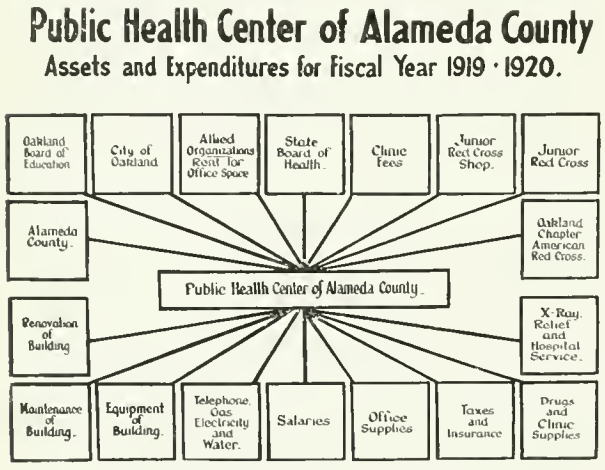

Public Health Center of Alameda County
Assets and Expenditures for Fiscal Year 1919 - 1920.
Oakland Board of Education
City of Oakland
Allied Organizations Rent for Office Space
State Board of Health
Clinic Fees
Junior Red Cross Shop.
Junior Red Cross
Alameda County.
Oakland Chapter American Red Cross.
Public Health Center of Alameda County.
Renovation of Building
X-Ray, Relief and Hospital Service.
Maintenance of Building.
Equipment of Building.
Telephone, Gas Electricity and Water.
Salaries
Office Supplies
Taxes and Insurance
Drugs and Clinic Supplies

Chart III. The sources of revenue for the Health Center of Alameda County are varied. The steady income provided bespeaks the general approval of the service. Assets and disbursements are diagrammatically shown.

population 1,500. This latter Health Center will serve four or five smaller towns covering a district known as the Washington Township. Plans are now in preparation for the establishment of a Health Center at Livermore, population 2,450, where is located a splendidly equipped institution for tuberculous patients, known as Arroyo Sanitarium.

Health Centers in Schools

In congested districts of the city of Oakland, where the foreign element predominates, branch health centers known as "Well Baby Conferences," "Children's Clinics," "Malnutrition Classes," and "Dental Clinics" have been established directly in conjunction with the public schools. These clinics are often operated in cottages upon the school premises and under the direction of the Director of the Health Center assisted by the school nurse. As the director of the Health Department of the Public Schools is also the medical head of the Health Center, a fully developed plan of Branch Health Centers in public schools will soon be installed. Ultimately a school health center, under the supervision of the school nurse, will serve the children of three or four schools, thus carrying out the idea of a health center to a unit of population. Dr. Edna Bailey, director of science of the public schools of Oakland, has rendered most valuable service in the organization of the school Health Centers.

As the Health Center serves the population of the entire county, both children and adults, the County Board of Supervisors appropriates annually a sum of money for the maintenance of the clinics. A portion of the salary of the Director of the Health Center and the entire salary of the twelve school nurses are met by the Oakland School Department. The Oakland Chapter of the American Red Cross has given a generous donation toward the equipment of the Health Center. Within the next month five additional dental chairs, including complete dental equipment will be installed in our various Health Centers (Chart III).

A marvelous and ever increasing source of revenue is obtained from our former Red Cross shop, which at the close of the war was given to the Health Center for operation. On invitation from the Health Center the public schools of Oakland were asked to cooperate in gathering old clothes and salvage of every description. The shop is now known as the Junior Red Cross Shop, and each month yields a steady income of over $3,000, all of which is used for the health work of the children of our community. From a single drive of one of our high schools $2,000 worth of material was collected in one day. Much credit of this shop is due to the untiring efforts of its manager, Mrs. Brady Wolfe, who also rendered valuable war service to our community.

Ofttimes a monthly sum is given by the main Health Center to an adjacent town to start a branch health center, under the supervision of the Director of the County Health Center, but these towns as soon as possible finance their own health centers.

Until the community has learned the value of these health centers and asks for their establishment it is thought best not to urge too large an appropriation for this purpose. So, at present, most of these school health centers are financed by women's clubs, prominent among which are: the Oakland Club, the Home Club, Collegiate Alumnae, and New Century Club. The Mothers' Clubs are lending their effort in many directions to make these school health centers a success.

The Ebell Society of Oakland has taken upon itself as its Community Service work for 1920 the construction of the children's wing of the new health center building.

The greatest service which the people of Alameda County foresee for the Health Center is to aid in fostering the healthy growth and the sound physical development of every child within its border.

TRADE UNIONISM AND TEMPERAMENT

Whether the problems of reconstruction are to be charged to the war, to bad morals, or to the faulty education, industrial problems are to be dealt with in no narrow spirit, is the opinion expressed by E. E. Southard, M.D., *Mental Hygiene*, April, 1920.

The article is a plea for an inclusion in the field of industrial medicine the neglected field of mental hygiene. Trade unionism, as defined by the late Professor R. F. Hoxie, is discussed as a phenomenon of mass psychology. The four types of trade unionism are considered by Southard to conform rather neatly with the classical types of temperament, and the genesis of the different trade unionism is due in great measure to temperamental trends. They interpret behavior along simple lines of direct action, and by applying modern psychiatry to the study of these problems, attempt to meet them with a better understanding and very much more sympathy, the logical method being to direct the choleric level into the channels of the "uplift" or "sanguine" temperament.

MUST WE PREPARE FOR A PANDEMIC OF SMALL-POX?

By WALTER C. ALLEN, Surgeon to Rochester Works, General Electric Company, Rochester, N. Y.

INTERNATIONAL quarantine officials, sanitarians, and epidemiologists express uneasiness regarding the very unsatisfactory condition as regards small-pox throughout the world. Two decades have passed since the notable epidemics of 1901 to 1904 visited a great number of great centers of population throughout the world. A long period of immunity has made the public everywhere careless regarding vaccination. In fact, the percentage of refusals of vaccination is on the increase in most of the civilized countries of the world.

Signs of Approaching Storm

There have been a number of localized epidemics during the last two years and health officials are beginning to ask themselves if these are rumblings of approaching storm. Here, in America, the Canadian epidemic, coming late in 1919, called the matter forcibly to our attention. It will be recalled that more than two thousand cases were reported from Canada in 1919, of which more than seven hundred developed in Toronto. In addition to twenty-six centers in the Province of Ontario where cases were reported, considerable numbers of cases were reported from the provinces of Quebec and Manitoba. In the Province of Ontario vaccination is reported to be compulsory. On this side of the border we have no such law.

It will also be recalled that late in 1919 the United States government declared a quarantine against Cuba because cases of small-pox were taken off a vessel arriving from the West Indies.

Reports in April, 1920, advised us that small-pox is epidemic in the states of Sonora, Chiapas, Oaxaca, Morelos, Chihuahua, and Guerrero, Mexico, and the collapse of the Carranza government will not help matters at all. In fact, they may be expected to go from bad to worse.

In the United States we have not been without warnings. There were a number of cases in California in 1919, as reported by Gillihan,[1] who concludes from his studies that small-pox is increasing throughout the world, both as respects incidence and mortality. The cases are of a mild form. However, he believes that severe reactions following poor methods of vaccination are universal. In view of the fact that the immunity conferred by vaccinations lasts only a few years, he advises systematic revaccination of the population.

Should small-pox become widespread, an increase in the virulence of the disease may be expected, with a change from mild to severe forms of the disease.

In 1917 there was a limited epidemic of small-pox in Maine. Stimulated by this warning, the Boston health authorities in 1917 and 1918 were successful in obtaining the vaccination of fifty thousand of its citizens. Boston still has an unusually large unvaccinated population, a matter of much concern to its health guardians.

It will also be recalled that small-pox broke out among employees of the Goodyear Tire and Rubber Company, Akron, O., in 1917. Two cases developed in September, 1917, ten in October, and thirty-two in November. A survey of the fifteen thousand employees was made; of these, ten thousand had been previously vaccinated and showed good scars; of the remaining five thousand, 1,647 were vaccinated in the factory, with 1,415 successful vaccinations. Since then a rule has been put in force requiring the vaccination of all employees without good vaccination scars. This rule, in view of all the facts, might well be put in force by all employers of labor. Industrial plants are like schools in that they are places where large numbers of people come in close contact and thus facilitate the rapid spread of any contagious disease.

Not Confined to America

Dr. R. Wurtz,[2] professor in the Paris School of Medicine, has had occasion to call attention to the danger of small-pox in France and, more particularly, in Paris. The situation in 1919 was worse than at any time during the war, when people from all over the world were crowding into Paris. By referring to the records it was found that in 1914 only six cases developed in Paris; in 1915, seven cases; 1916, four cases; 1917, six cases; 1918, 55 cases; while in 1919, 47 cases developed during the first five months, with fifteen of these in April and twenty-two cases in May. Vigorous action was taken which tended to reduce the incidence. The reappearance of small-pox in France is ascribed to foreign importations from Morocco, Spain, Italy, and Algeria, together with violation of the sanitary regulations, especially in crossing from Northern Africa into France, and the obstinate refusal of the public to be vaccinated. He reported that more than 60 per cent of hospital patients had refused revaccination on the ground that they had been vaccinated in childhood.

Sir George Newman,[3] chief medical officer to the late Local Government Board, which has since been merged with the Ministry of Health of Great Britain, referred to the numerous outbreaks of small-pox in his report. For 1907, 206 cases were reported from fifty-eight sanitary districts. He notes that the percentage of children successfully vaccinated in 1917 was only 43.3 per cent, with exemptions of 37.9 per cent. He compares these figures with those of 1896, twenty years ago, when 61 per cent of the children were successfully vaccinated, with exemptions of only 5 per cent. Following the last serious epidemic of 1901 to 1904, 70 per cent of the children were successfully vaccinated. On account of the war the percentage of revaccinated men of ages twenty to forty is very large. This favorable situation as regards the adult male population is contrasted with the unprotected state as regards children. Col. J. W. S. McCullough,[4] Toronto, made similar observations, reporting 600,000 vaccinations in the Canadian Army with no untoward results.

When the public can purchase protection so cheaply by vaccination and revaccination, especially in view of the ravages of the past, one wonders at its gross general indifference. Boston has forgotten its epidemic of 1901

1. Gillihan, A. F.: Small-Pox Increasing in California, California State Jour. Med., 1919, xvii, 166.

2. Wurtz, R.: Small-Pox at Paris During the War, Bull. Acad. d. med., Paris, 1919, lxxxi, 833.

3. Newman, Sir George: Annual Report, Chief Medical Officer, Local Government Board, Great Britain, 1917.

4. McCullough, Col. J. W. S.: Special Smallpox Bulletin of Chief Health Officer, Province of Ontario, Can., 1919.

and 1902, with its 1,528 cases and 190 deaths. In the eighteenth century small-pox was more common than measles. The Chinese long classed it as a children's disease. In 1802, a speaker in the British Parliament said that 45,000 died annually of small-pox in the United Kingdom. In 1702, 14.4 per cent of the population of the United States died of small-pox. In 1721, 5,989 out of a population of 16,000 in Boston succumbed to small-pox. In 1730, there were 4,000 cases of small-pox in Boston, with 500 deaths.

According to the China Medical Journal,[5] the innoculation of human beings with variola virus has been a recognized medical practice in China since the Sung dynasty in 1022. It seems that the Prime Minister, Wang Tan, had several sons who contracted small-pox. He heard of successful preventive innoculation practised by a Szechwanese living in the Ngo Wei Mountain. Wang Tan had a son innoculated and the innoculation proved successful. Following the publicity given the procedure by Wang Tan, the method was rapidly taken up and became popular with the people.

Researches in Variola

While considering small-pox, it may be interesting to call attention to some of the more recent researches. Sobernheim[6] notes fine granules, corresponding to Guarnieri's cell inclusions, which he thinks may be of etiological significance. These granules were found in the cornea of rabbits inoculated with pustule contents according to the method of Paul. The scarified cornea, rubbed with small-pox material, showed a macular reaction in thirty-six hours. When the eyeball was immersed in mercurous-chlorid-alcohol solution, the cornea turned grey, while the swellings showed as chalky white masses.

Casagrande, and later Knoepfelmacher, passed virus through a Chamberland candle and used the filtrate for subcutaneous injection. Using such a filtrate, Kraus and Volk[7] reported the hypodermic vaccination of one thousand cases by this method. Goodall[8] has recently reported very favorable results using similar technic, in the hypodermic injection of six thousand soldiers and children throughout a four-year period. This mode of vaccination against small-pox, according to Goddall, has the following points in its favor: (1) It leaves no open wound subject to infection. (2) It requires no dressing. (3) It produces a high percentage of "takes." (4) It is without severe local or general reactions. (5) It is a rapid means of vaccinating large numbers of patients. Chauveau (1886-1887) first proposed this method.

Hata[9] has reported on the use of autogenous serum in the therapy of small-pox. Dividing his cases into non-hemorrhagic and hemorrhagic types, he reports no deaths among the non-hemorrhagic cases treated with autogenous serum and a mortality 16 per cent less than those treated symptomatically among the hemorrhagic cases. Combining all cases, the mortality was 8.6 per cent less than with ordinary treatment. He also reports that the course of the disease was shortened. Normal human serum seemed to have no effect in small-pox.

THE MODERN FACTORY*

The importance of health conditions in the factory is indicated by the enumeration in the 1909 census of 6,615,046 persons in industrial establishments.

The opening chapters of "The Modern Factory," by George M. Price, give a cursory survey of the development of industry from the phase of the guild, employing few wage-workers, which contemplated turning out each worker a master of his craft, and in which the employers commingled with the workmen and were busy with the same tasks.

The shops where the medieval craftsman labored were usually small and dark; no sanitation was undertaken and "it is no wonder that the ranks of the workers of the middle ages were frequently decimated by plagues." Some records remain of an awakening sense on the part of some physicians and surgeons to the importance of health and sanitation, but it was not till the end of the sixteenth century that knowledge of industrial diseases and occupational influences became crystalized in the great work of the father of industrial hygiene, Barnardino Ramaggini.

The introduction of machinery, necessitating the concentration of capital, the construction of large factories, and the congregation in small areas of large numbers of workers produced economic causes of unrest which were at the root of all the English wars during the latter part of the eighteenth century.

Perhaps the greatest evil which followed the inception of the modern factory system was the "terrible exploitation of child labor in factories."

Out of the abuses at the beginning of the present industrial system have been evolved more intelligent attention to industrial problems and an appreciation of the facts that (1) the mortality of people living in industrial districts is much greater than that of persons living in agricultural districts; (2) the mortality of persons in certain general occupations, such as farmers, fishermen, or clergymen, is much lower in comparison to the mortality of persons pursuing industrial occupations; and (3) the mortality of persons in certain occupations is much lower than the mortality of persons who pursue occupations which contain elements of danger, and are of unhealthful character for one or more reasons.

With these premises admitted, the work place is considered as to its location, surroundings, and construction, and as to its internal arrangement. Impetus has been afforded by the fact that the highest standards of "model" factories have made for industrial efficiency, and for better relations between employees and employers.

"As progress is made in industrial conditions, and as the relation of sanitary science to industrial efficiency comes to be more generally understood, the conception of a model industrial establishment advances, and the state and municipal provisions constantly change and progress; so that what is today considered a voluntary provision by enlightened manufacturers becomes tomorrow the minimum provision required by the state."

From these general considerations chapters are developed on factory fires and their prevention, factory accidents and safety, illumination, sanitation, ventilation, welfare work, and the special hazards of the dusty trades and of industrial poisons, gases, and fumes.

The growth and tendencies in factory legislation lead to a discussion of the enforcement of such laws and to systematic inspection of factories. The treatment of these matters is necessarily brief but are specific and helpful, and have weight as the crystallization of the experience of the author's years of service as sanitary inspector of the New York Health Department and of his years of practice and of research into the sanitary sciences.

5. China Medical Journal, January, 1919.
6. Sobernheim, G.: Cor.-Bl. f. Schweiz. Aerzte, 1919, xlix, 1849.
7. Kraus and Volk: Wien. klin. Wchnschr., 1906, xix, 620.
8. Goodall, J. R.: Vaccination by Subcutaneaus Injection, Am. clviii, 721.
9. Hata, K.: Japan Medical World, 1919, No. 296.

* "The Modern Factory" by George M. Price. John Wiley & Sons, Inc., New York, 1914.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M. OLMSTED, R. N., *Editor*

MISS ALICE FITZGERALD, OF THE LEAGUE OF RED CROSS SOCIETIES

IN presenting the picture of Miss Alice Fitzgerald, chief of the Division of Nursing of the General Medical Department of the League of Red Cross Societies, Geneva, Switzerland, we cannot refrain from filling in some of the interesting details of her service during the war. Miss Fitzgerald was graduated from Johns Hopkins Hospital and had filled several important executive positions before she was sent to Europe in February, 1916, as the Edith Cavell Memorial Nurse, supported by a committee of loyal Bostonians.

Miss Fitzgerald's first service was under the auspices of the British organization that is known as the Q. A. I. M. N. S. R. (Queen Alexandra Imperial Military Nursing Service Reserve. (She was enrolled as a Sister (head nurse) and was sent first to Boulogne to a base hospital of seven hundred beds, where she had charge of a surgical ward. The hospital itself was of interest, as it was a casino transformed to meet the needs of the soldiers. Her work with the English nurses held a rather curious interest at first, as there were many differences of methods and practice, and even of terms. The work was fundamentally the same as that in American service, however, and she expresses herself as having found all of the British hospitals marvelously well conducted, the management and system providing for every contingency. Much of the dressing in the big surgical cases was left to the nurses, and in every instance in her experience everything that could be secured to make the men more comfortable was provided. Even on the front lines the system provided for the wounded men the daily rations of tobacco, and the afternoon cup of tea to which they had been accustomed. It was a part of the duty of the nurses to send twice a day bulletins on the condition of the seriously wounded men, so that the relatives of the men in Australia, Canada, South Africa, or any part of the world received authentic word of their condition and progress.

Her next work was in a barracks hospital near Bethune, where many trench fever cases were handled. Later she was sent to Italy to open hospitals and asylums for the refugees from the devastated regions. She served in one hospital on the road to Amiens which was shelled very often. It was later found that the Germans spared the hospital because it served their aviators, who made a sharp turn at that point, and its destruction would have hampered their movements. This was not known in time to save the disquiet caused by the proximity of the war machinery.

On her return to France Miss Fitzgerald was placed in charge of the American Red Cross nurses of the *Service de Santé*, her duty being to assign nurses to the French hospitals which were caring for American soldiers. These nurses were organized in teams of one American nurse and one aide who acted as interpreter in looking up lost American soldiers. In this way aid was extended to about four thousand soldiers. Her work took her all over France.

In May, 1919, she was appointed chief nurse of all the American Red Cross nurses in Europe, with headquarters in Paris, and in November, 1919, she received the appointment to her present position. In addition to her fine professional training and experience she is an accomplished linguist, speaking French, Italian, German, and English.

At present Miss Fitzgerald is arranging for a course in public health nursing in connection with King's College of the University of London, which the League of Red Crosses is offering to scholarship students from all of

Miss Alice Fitzgerald, chief of the Division of Nursing of the General Medical Department of the League of Red Cross Societies, Geneva, Switzerland.

the Red Cross societies represented in the League. A more interesting group of workers and a course more impregnated with great possibilities for the future international health would be hard to imagine.

Miss Fitzgerald was decorated by the Italian Government and by the British Red Cross for her services during the war.

A WARNING TO EMPLOYERS OF INDUSTRIAL NURSES

A WARNING has recently been sent to employers of industrial nurses in the state of Rhode Island by the secretary of the State Board of Health in the form of a bulletin which reads as follows:

It has recently come to our attention that certain nurses in the employ of manufacturing establishments in this state are, either by voluntary act or by the requirements of their employers, in effect violating the Medical Practice Act.

The State Board of Health is also the State Board of Registration in Medicine, and is therefore responsible for the strict compliance with the law on this subject.

The Board, at its regular meeting held May 13, 1920, voted to instruct the Secretary to write and send the following letter to all known employers of industrial nurses in the state:

A nurse or "First Aid" man or woman is permitted to render any "First Aid" service possible in the event of accident or disaster in case a physician is not available and until such time as one is available.

A nurse is allowed under these conditions to apply dressings or tourniquette or do anything else that in her opinion will be of service to the injured, or as an emergency measure.

She cannot, however, legally re-dress such wounds or combine treatment of the injured party except under the direction of a licensed physician.

The diagnosis of disease or the administration of drugs and the application of surgical dressing to wounded or injured parts except by duly licensed physicians is in violation of Chapter 193, General Laws of Rhode Island.

I also give below a definition of the practice of medicine given by our Supreme Court:

"Medicine, in the popular sense, is a remedial substance. The practice of medicine, as ordinarily or popularly understood, has relation to the art of preventing, curing, or alleviating disease or pain. It rests largely in the sciences of anatemy, physiology, and hygiene; it requires a knowledge of disease, its origin, its anatomical and physiological features, and its causative relation; and further, it requires a knowledge of drugs, their preparation and action. Popularly, it consists in the discovery of the cause and nature of disease, and the administration of remedies or the prescribing of treatment therefor."

This bulletin was sent over the official signature of B. U. Richards, M.D., secretary, Rhode Island State Board of Health, under date of May 27, 1920.

The work of industrial nurses is naturally varied. Each plant and each industry is a separate problem requiring distinctive individual methods of solution. Industrial nursing has been of rapid and recent growth. Nevertheless, the ultimate standardization of methods, records, equipment, and restrictions will soon evolve and will result in greater efficiency and safety, both to nurses and employees.

The bulletin is rightly addressed to the employers of industrial nurses, and not to the nurses themselves. The industrial nurse is an agent of the employer, and in no two places are her duties and responsibilities the same. Her service is often curtailed or misdirected because her employer has little idea what a well trained nurse can do for his industry, employees, and the community. For other employers her scope of activities is broad; and many industrial nurses find the giving of "first aid" in the factory only a small part of their most valuable service. They are doing sanitary inspection, accident prevention work, visiting nursing, and the caring for the sick in their homes, teaching the lessons of right living, prevention of disease, and elementary nursing principles in homes, factories, and schools. They supervise lunch rooms, rest rooms, and recreation centers. They make Americans out of foreigners.

Industrial nurses are public health nurses, and one of the most fundamental principles of public health nursing is that a doctor shall be in attendance on every case cared for; that the cases shall belong professionally to the doctor, not to the nurse; and that the nurse shall never take upon herself duties or responsibilities rightly belonging to the physician.

There is no reason why industrial nurses should carry any responsibility not usually assumed by other public health nurses. The leaders of industrial nursing have consistently stood for the employment of factory physicians and for the use of standing orders. Miss Florence Wright, chairman of the Industrial Nursing Section of the National Organization for Public Health Nursing, and author of the book, "Industrial Nursing," in a recent letter said: "I see nothing in the notice sent by the Rhode Island Department of Health to the industrial nurses which would be any handicap to their usefulness. We have from the beginning stood firmly on the ground that a company employing a nurse must employ a full- or part-time physician. Standing orders of such a physician would certainly constitute the 'direction of a licensed physician.' We have also stood firmly on the ground that a nurse should not administer drugs."

Most graduate nurses realize that industrial nursing is in a creative period, and the present-day industrial nurses have the power to create and build standards and prove that they are an indispensable part of a system designed to provide better health for industrial workers. Nevertheless, these nurses are constantly forced to realize that their work is being greatly retarded by the employment by many firms of untrained women. Miss Edna L. Foley, superintendent of the Visiting Nurse Association of Chicago, says:

I was very much interested in the statement issued by the State Board of Health of Rhode Island, for I have wondered how long it would be before some enterprising physicians caused such a statement to be given.

Several years ago some of us thought that factories were putting in industrial nurses in order to save the salaries of physicians. Many of these nurses were but half trained people who were more than willing to trust themselves to do a great deal. A well trained nurse will rarely, if ever, allow herself to do daily dressings, without a doctor's orders, or to prescribe medicine; but a badly trained nurse is always so deadly confident that she rarely gets a case that she is afraid to handle. I have known of aspirin given to heart cases because the so-called "industrial nurse" thought the symptoms were those of grippe, and I have seen cathartics, aromatic spirits, and headache tablets given as freely as water by equally incompetent assistants.

A good nurse knows that she is not licensed to practise medicine and she doesn't attempt it; but I once knew of a school nurse who was almost dismissed by the President of the Board of Education because she refused to treat the children in a large public school without the sanction of the local medical society, since the town felt it was too poor to pay a medical inspector. All sorts of unfair pressure is brought to bear upon women who are themselves not too well trained and, consequently, they do more than first aid and perhaps they are fairly often guilty of actually practising medicine. Ignorance of law or personal innocence is really no excuse.

An industrial nurse who has her wits about her can almost always make her firm see that it will be better and less expensive in the long run for them to call in a local physician and make such arrangements with him that

she may call him in an emergency or send special cases to him. If this physician is put in the employ of the company and is somewhat familiar with conditions of work, he is usually more than willing to give the nurse a few helpful and more or less simple p. r. n. orders. If these orders may not be repeated more than once for the same person without special reference of that case to the physician, it will prevent a nurse from falling into the habit of giving C.C. or migrain tablets too carelessly, which I once saw done in the medical department of a firm employing four doctors and several nurses. When we made the rule that no patient could have a p. r. n. dose more than once without seeing the doctor, the amount of requests for p. r. n. dropped one-half and the girls seemed none the worse off for it.

A good nurse, whether she is working in a public school or in a factory, does not like to feel that she may not, at a moment's notice, consult a physician if she needs to, and we will only help standardize industrial nursing when we recognize this fact and persuade employers to be just as careful in the selection of part-time or full-time physicians for their people as they should be in their selection of nurses.

Miss Foley, as usual, hit the nail on the head in saying that well trained nurses rarely usurp the duties or responsibilities of the physician.

A letter from Miss Mary S. Gardner, superintendent of the Providence, R. I., District Nurses' Association, and author of the book "Public Health Nursing," corroborates our belief by saying:

I have taken a day or two to get a little more information from one of the prominent industrial nurses here in regard to Dr. Richard's bulletin. She tells me that before the bulletin came out he gathered the industrial nurses of the state together and talked things over with them. The situation in Rhode Island was pretty bad, for there were a number of women *who were not graduate nurses doing industrial nursing and taking astonishing liberties in regard to prescribing medicine, diagnosing cases, and giving treatment.*

As far as I can discover, the well trained industrial nurses feel that the bulletin is a good thing wherever the regular doctor is in attendance or wherever standing orders can be obtained; but that occasionally it is limiting not to be able to prescribe a cathartic or some other similar thing, but all feel that too much curtailment is better than too great liberty.

While trying to place the blame where it belongs for a condition existing not alone in one state but in all where industrial nurses are being employed, we must not neglect the fact that many nurses young and new in the work are not properly directed by the plant physician. Miss Janet Geister, secretary of the National Organization for Public Health Nursing, says:

Many times industrial physicians are too willing to relegate important functions to the industrial nurse; and the nurse, often new and poorly trained, foolishly accepts these responsibilities. I remember when I was supervising industrial nurses in Chicago, one of the first nurses that I interviewed was doing much first aid work that she had no right to do. She rebelled against my suggestion that she take care of only minor injuries, and *the doctor for the plant encouraged her in protesting against my recommendation.* We succeeded, however, in bringing about a satisfactory arrangement. I do not think we can too strongly urge the need for well defined, carefully worked out standing orders that would receive the approval of medical men in general and not merely be the instruction of the physician in the plant. It is, of course, not necessary to get the endorsement of all local medical men, but it is highly important for the nurse to be certain that in carrying out her standing orders she is not violating the laws of her state, and she should always limit her dressings to those that are permitted under her standing orders.

We must not fail, while discussing this industrial nurse situation, for the sake of future industrial nursing, to express the earnest hope that the bulletin will serve as a drastic warning to those nurses who may be well trained but careless, and to those poorly trained and ignorant of the fact that leading nurses, with knowledge and vision, and nursing organizations, do not sponsor or approve of nurses who, either by their own voluntary act or through the requirements of their employers, in any way violate the Medical Practice Act.

These nurses retard seriously the growth and development of industrial nursing, and at the same time place themselves in danger of legal prosecution. EDITOR.

SICK BABIES GO A-SAILING ABOARD A FLOATING HOSPITAL

Past the docks in the New York Harbor each day and each night there sails a floating hospital carrying on board toward the mouth of the harbor into the cool sea breezes several hundred sick babies and their mothers. Down it sails with its patients, the babies from New York and Brooklyn dwellings who have been sought out from the crowded districts, from hot, sweltering tenement buildings, and from the homes of poor families who are unable to give the baby such nursing and medical care as it should receive.

The St. John's Guild operates the hospital. Since 1873 the Guild has maintained a boat for the care of babies and mothers, and hospital service has been a feature of the enterprise since 1887. The craft now in operation is known as the Helen C. Juilliard Floating Hospital. It was so named after the late Mrs. Augustus D. Juilliard, one of the principal donors of the second and third hospital ships which the St. John's Guild has built in the last score of years.

The boat leaves three piers in New York on three days of each week and on other days it leaves from three Brooklyn piers. The day trips are for sick and ailing children under six years of age. Their mothers may accompany them on the day trips, but not at night. Both mother and child are in need of medical attention in numbers of cases. Contagious diseases are not accepted, but any other case of illness or serious sickness will be admitted after examination by a physician. The babies are located by visits to dispensaries, hospitals, milk stations, settlement houses, and other community gathering places.

In conjunction with the floating hospital the St. John's Guild conducts the Seaside Hospital, which is situated on the shore at New Dorp, on Staten Island, just across the lower bay from Sandy Hook. The beach at Seaside furnishes an excellent playground for the little ones. The children bathe here too. The water near the hospital for several hundred feet is shallow and well suited for the children's use.

The hospital staff of the Helen C. Juilliard includes two physicians, a dentist, a superintendent of nurses, a matron, and six nurses. Nine other nurses are at all times making visits in various districts of New York and Brooklyn searching out the families who have sick and ailing babies or small children. If a case requires a longer period of treatment than can be given aboard the Helen C. Juilliard, the child is transferred to the Seaside Hospital.

The boat now in use was built in 1916. It has four wards on the front upper deck of the vessel. Another small ward is provided for the care of mothers if occasion arises. Complete facilities are provided for ward service, nursing, and for operations. Hot and cold baths are accessible to mothers and children. These are provided with either fresh water or salt water. The children are bathed on a drain board or bathing table, near which are situated small tubs. After having its bath on

The Helen C. Juilliard Floating Hospital.

the drain board, the baby is dipped in the tub. Clean clothes which have been placed in a warmer are waiting for each child after its bath.

The boat has sterilizing apparatus and all other equipment necessary to make it an ideal hospital of its kind. There is a small mortuary, but deaths occur infrequently, although no cases of sickness are ever refused, excepting contagious diseases.

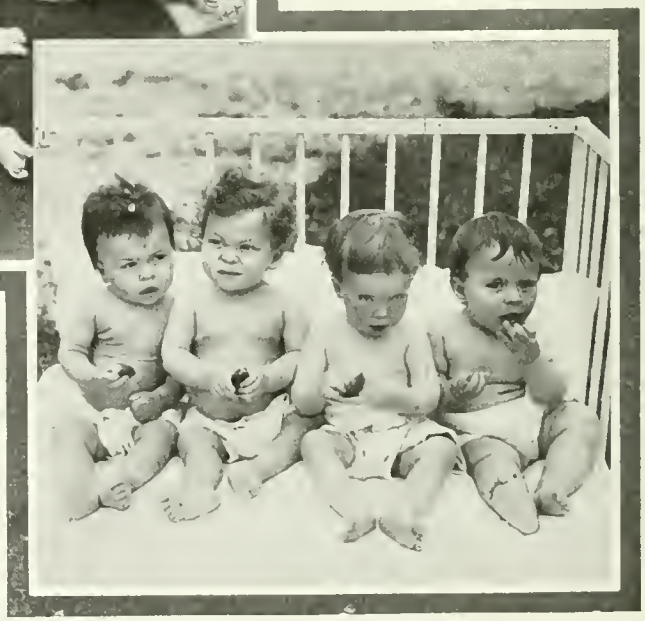
The first trip on the Helen C. Juilliard.

A diet kitchen under charge of a competent dietitian supplies meals. Everything is free, but on the day trips the mothers are asked to bring a clean pitcher or a tin pail for milk, and to carry along warm wraps for the children. Adults receive a large noon meal and two meals are served each day for the children on every trip, which consumes practically the entire day.

The boat is 215 feet over all in length, with a beam of 43 feet. It has a legal carrying capacity of 2,400, but the number has been limited to 1,200 to provide for better service. It was built and equipped at a cost of $125,000, which was donated by Mrs. Juilliard, who died only a short while before the new ship was complete for service. It has electric light and steam heating plants, which can be used in winter as well as summer if found necessary.

Babies who are not so sick that they need to be placed in one of the wards, if with their mothers, are kept on one of the decks, where benches are provided for the mothers with a convenient arrangement of hammocks swung on iron frames attached to the backs of the benches, in which the babies are placed.

The work of the hospital staff does not end with caring for the sick children and mothers, however. Instruction for mothers in how to prevent sickness in their



Seasoned voyagers on the Floating Hospital.

Mothers sit on the benches, with their babies beside them in hammocks.

families is one of the regular activities of the physicians and nurses.

The plan of taking mothers and children on the trips has been adopted because in this way it is easier to gain the consent of the parents to allowing their babies to be taken on the hospital ship. The instruction which mothers receive at the same time compensates for the extra effort in providing for their comfort and care.

At the Seaside Hospital the patients are kept as long as the attending physicians believe necessary and no time limit is fixed. If the child should be taken seriously ill, the parents are immediately notified by telephone or telegraph, and they can come at any hour, day or night; otherwise the regular visiting day is Sunday.

The operating cases are few, but the Seaside Hospital is thoroughly equipped for any emergency. A large supply of sterilized dressings, instruments, etc., is always on hand.

Considerable laboratory work is done at Seaside, for which there is a complete equipment. There is also a fully equipped dental office, in which the teeth of children are put in good repair. Caring for the children's teeth is a feature of the work; the older ones are taught and made to take proper care of their teeth, as are also mothers who remain with the children.

HEALTH STATISTICS FROM BELGIUM

Vital statistics in Belgium brought together recently afford an interesting picture of the effects of the war. In general the mortality curves show four or five times the normal number of deaths between 1913 and 1918, the maximum being six times the normal rate during 1917. While the birth rate was lower than normal, the infant mortality rate was diminished. In the Brussels district the typhoid rate diminished to half or less, but tuberculosis and heart disease doubled. Senile debility doubled. Cancer increased steadily as a cause of death. With the exception of the social diseases, death from communicable diseases decreased.

AN EQUAL CHANCE

WHAT is a public health nurse? Whom does she serve and how? Why is she "one of society's indispensables"? When these questions are asked, answer them with pictures. The National Organization for Public Health Nursing has recently completed a film portraying public health nursing in cities, rural, and small town districts.

The "story" part of the film was taken in Duchess County, New York, with the cooperation of the New York State Department of Health. Other pictures were taken on the Wind River Reservation in Wyoming, in Chicago, in St. Mary's Parish, Louisiana, and in the village of Isleta, N. M. All details of nursing technic have been carefully supervised by competent censors. The following associations have recently bought copies of the film, so that it will be available to communities within their district: The National Tuberculosis Association, 381 Fourth Avenue, New York City; the Community Motion Picture Bureau, 46 West Twenty-fourth Street, New York City; American Red Cross Bureau of Motion Pictures, 44 East Twenty-third Street, New York City; New York State Department of Health, Springfield, Ill.; the Boston Instructive District Nursing Association, 561 Massachusetts Avenue, Boston, Mass.; Connecticut State Department of Health, Austin, Tex.; Kansas State Department of Health, Topeka, Kan.; Southwestern Division, American Red Cross, Equitable Building, St. Louis, Mo.; Southern Division, American Red Cross, 249 Ivy Street, Atlanta, Ga.; Pacific Division, American Red Cross, 864 Mission Street, San Francisco, Cal.; Gulf Division, American Red Cross, Washington Artillery Hall, New Orleans, La.; and Central Division, American Red Cross, Pioneer Building, South Water Street, Chicago, Ill.

The Film Tells a Story

When the influenza epidemic swept the country in the fall of 1918, Shirleyville Township found itself with no public health nurse and only one doctor, the others having been called away for military service. The overworked physician applied to the nursing association in the neighboring city for a public health nurse to aid him in caring for the stricken district. The nursing association is obliged to refuse at first, but at length when it becomes possible to assign a nurse for duty in Shirleyville, the rich farmer of the district, misunderstanding the relation of the public health nurse to the community which she serves, attempts to appropriate her services exclusively for the care of his sick child. Miss Gillis, the public health nurse, points out that there are other families in the district who must be given an equal chance in the emergency. Later, Reynolds, the rich farmer, is completely won over by Miss Gillis' success not only as an efficient aid to the doctor in bedside nursing, but as a teacher of the principles of sickness-prevention.

A Film Within A Film

In the country school, as a result of her efforts, the children are taught health habits and are given regular examinations by a doctor. Shirleyville discovers that in the public health nurse it has acquired a public servant who is well nigh indispensable, not only in an emergency like the epidemic, but in the everyday work and play of the community. So Reynolds, who has become an enthusiastic convert, induces the state health department to send the Healthmobile to Shirleyville and calls a mass meeting to decide whether Shirleyville wishes to retain its public health nurse permanently. In the course of the meeting

Even the "Movie Man" is enlisted in the general campaign for health. He brings this picture record of the visiting nurse service to the tepee tents of the Pueblos at Isleta, N. M., and to the Arapahoes and Shoshones in Wyoming.

Interest in health matters is registered in the picaninny faces from the Southland. Chief Yellow Calf thanks the movie man for his services, and good Indians everywhere show themselves ready to co-operate.

the Healthmobile shows motion pictures—a "film within a film"—demonstrating the work of the public health nurse in open air schools for tuberculous children, among the Shoshone and Arapahoe Indians on the Wind River reservation in Wyoming, and among the negroes in the semi-tropical scenery of Louisiana. Reynolds then puts the question, "Do we want to keep the Public Health Nurse"? and the meeting votes "Yes" by acclamation.

Besides the demonstrations of bedside care, home instruction, and country school nursing which are woven into the body of the story, the "Film within a film" makes it possible to include accurate representations of various other branches of public health nursing, such as maternity care, infant welfare, and tuberculosis, without breaking the thread of the narrative. The interesting story of health work "gets across" in this dramatic presentation.

HEALTH WORK AT THE COUNTY FAIR

By MISS STELLA FULLER, Extension Secretary, Central Branch Office, National Organization for Public Health Nursing, Chicago, Ill.

COUNTY fairs are not original with us; they are held in practically every civilized land. The peasants of Europe bring their stock and their produce to the villages and towns at regular times. It is natural to visit and play a bit whenever a large group of people get together.

To those of us who were born and bred in the country the thought of "fair week" is filled with happy meaning. The long years that have passed between have not effaced the memory of those delightful days when dressed in our best clothes we piled into the lumber wagon with Pa and Ma, and drove off to the County Seat to the Fair.

All along the way, we greeted our neighbors and friends bound for the "grounds." Life held nothing so dear as a ride on the Merry-go-round, a chance to carry a brightly colored balloon, a dime to shoot at the "nigger babies," a look at the races, and a visit to the stock barns and the exhibition rooms. Wasn't it hard to wait until dinner time when Mother spread the picnic lunch under the trees, with sandwiches, cake, fruit, and *maybe* a little roasted pig.

At the end of a perfect day, we drove home, our money spent, our best clothes soiled, almost too tired to do the chores, but blissfully happy and wishing we could go again the next day.

The Fair Gains in Influence

The County Fair has lost none of its charm, but it has gained considerably in its influence on country life in the

"An Equal Chance for All" is extended to these babies, who are being cared for by the Chicago Infant Welfare Association.

past ten years. The country people themselves, the women's clubs, the rural school teachers, the county demonstration agents, and the public health nurses have wrought the change. *Now*, no County Fair is considered a success if it does not include something that emphasizes healthy parents and healthy children, as well as healthy *live stock*.

It is a common thing now to have a rest tent where tired mothers may come to nurse their babies and to leave

This "Health Tent" maintained by the American Red Cross at the county fair is wholly constructive in its influence, emphasizing, as it does, the importance of healthy parents and healthy children.

them in dainty cots to be cared for by the County Nurse and her assistants. The mothers like to know there is a place where they can "wash up" and get away from the crowd a bit, a place where they can talk to the nurse about the health of their children, and perhaps have the babies weighed, measured, and registered.

Some of the nurses have an extra tent or room for this work. Through the cooperation of local physicians they have physical examinations of old and young and give out health literature to those who care to have it.

Nurses who make the most success in this work are the ones who conduct an extensive publicity campaign at least one month before the fair, and who interest their committees, their friends, and their neighbors in giving time and help to this important part of the harvest gathering.

The health exhibit giving information on proper diets, sanitation, ventilation, and right health habits is now quite as interesting and more worth while than the crocheted bed spreads and the prize roosters.

Health Interests Everybody

In competition with the old time side show where the fat lady and the living skeleton sat on decorated thrones, there are splendid health moving picture shows or lantern slides with lectures that teach the value of good health to old and young. Where the professional barker stood at the tent door and extolled the mysteries of hidden entertainers and grew eloquent of the splendid exhibition within, the Camp Fire Girls, the Boy Scouts, and the Modern Health Crusaders may give health plays or dialogues demonstrating the value of boys and girls clubs in the health and economic growth of the nation.

In the old fair days the kiddies, and their parents, too, were amused at the antics of clowns who performed on platforms twice during the day. The very latest evolution of "clowndom" is the health clown who goes about through the fair grounds carrying health banners, waving health signs, brandishing tooth brushes, his pockets bulging with vegetables and other foods that prevent and cure malnutrition. He knows little health rhymes and jingles that he recites or sings. He jokes the people, young and old, peering into their faces to see whether their cheeks are red and their teeth are clean. He lifts tiny boys and girls to see whether they weigh as much as they should, and, altogether, through the whole day, this health knight continues to suggest *health* to the great crowds that throng the park and choke the grandstand. The small amount of money it is necessary to pay him comes back eventually in better, stronger men and women.

Sometimes, in competition with the parades of breeded stock, sleek and well fed, he organizes a parade of healthy boys and girls, pushing aside with pitying hand those who do not measure up to his ideas of what health means. Cho Cho, a professional Health Clown, may be secured from the Child Health Organization 156 Fifth Avenue, New York City, if his services are requested early.

A Self-Service Bath Room

One county nurse showed a facsimile of a bath room she had arranged in a farm house where there was no running water.

It is like the Blank's, she said. I had visited the home for several days when the youngest baby was born and later when Jimmy broke his arm. The poor lad was sadly in need of a bath; so, while Mrs. Blank finished her washing, I gave the little chap the best scrubbing he had received since swimming time last summer. His tired mother was pleased as could be and said she wanted her family to bathe every Saturday, but there was no bath room and well—she couldn't make them do it.

To make a long story short, within a week the Blanks had a comfortable place to bathe. A small room off the kitchen was emptied, cleaned, painted, and fitted up with small stove, rag rugs, sash curtains, two chairs, a cupboard for towels, wash cloths, under clothing and night clothes, a covered laundry basket, a mirror, first aid cabinet, a shelf for manicure set, shaving outfit, tooth brushes, paste and dental floss, box for clothes brushes and shoe polish, water pail, wash tub, waste pail, foot tub, hot water bags, and fountain syringe.

As a last touch, I added a health sign or two and voila—the Blanks now are *clean* and there are no quarrels on Saturday night.

This nurse is just one of thousands of health missionaries who will, during the months of August and September, do many things in connection with the county fairs to promote health and happiness on the farm and incidentally help to keep the boys and girls from flocking to the over crowded cities where the pay may be more, but the opportunities for a peaceful, happy life, much less.

The organization* of this work provides: (1) *publicity through* schools, churches, committees, fair board, and newspapers; (2) *rest tent for* mothers, babies, distribution of literature, and individual conferences; (3) *a health tent for* registration of children and adults, weighing and measuring, physical examinations, children, and adults; health talks, health slides and moving pictures, exhibits and contests (school children participating). Camp Fire ceremonials, Boy Scouts, to assist with *first aid*, and demonstrations by nurses; (4) *a health clown to* carry health banners, recite health rhymes, organize health games and parade, distribute health literature, and emphasize health in various ways; and (5) *a model farm bath room containing* sash curtains, rag rugs, two chairs, cupboards, shelves, small stove and tea kettle or wash boiler, laundry basket, waste paper basket, first aid cabinet, fountain syringe and hot water bags, mirror, toilet necessities, water pail and waste pail, wash tub, foot tub, under clothing, and nightclothes.

*Further details may be secured by writing to the National Organization for Public Health Nursing, 116 S. Michigan Ave., Chicago, Ill.

HYCLORITE
REG. U.S. PAT. OFF.
CONCENTRATED SODIUM HYPOCHLORITE

Always Ready—No Time Lost

INDICATED in surgical dressing and treatment of wounds where there are large masses of dead and devitalized tissues or profuse tissue exudate which cannot be removed by mechanical means.

Hyclorite liberates its chlorine content promptly and in proportion to the degree of putrescence to be overcome. It rapidly oxidizes the toxins and dissolves the necrosed tissue.

In contrast to the irritating effects of the ordinary Dakin solution and chloramine antiseptics, Hyclorite is practically non-irritating.

Hyclorite is also uniform in hypochlorite strength, (Na OCL 4.05%) and of exceedingly low alkalinity. (¼ of 1%). It does not deteriorate appreciably with age.

It exerts a powerful, indirect germicidal action. Promotes rapid healing.

Makes a correct Dakin solution in one minute. Just add water. No testing necessary.

Accepted by A. M. A. (N. N. R.)

Write for sample and literature to

BETHLEHEM LABORATORIES, Inc.

BETHLEHEM, PA.

Manufactured by
General Laboratories,
Madison, Wis.

for
Bethlehem Laboratories, Inc.
Distributors.

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.
R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.
H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE
1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRITPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume 1, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,
22-24 East Ontario Street,
Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

Current Literature and Book Reviews

A TEXT BOOK OF PHYSIOLOGY. For Students and Practitioners of Medicine. By Russell Burton-Opitz, S.M., M.D., Ph.D., associate professor of physiology, Columbia University.[1]

The author has succeeded in presenting the subject of physiology in as simple a manner as possible. The medical student of today is so overworked that he cannot afford to read long mathematical and chemical formulas, and any textbook that eases his burden will be welcomed by him.

As a whole the book is complete. Here and there, however, one notices certain omissions or disproportions. In the short article on the history of physiology on pages 18 and 19, the author left out so gigantic a name as Magendie. It is true that the author did not intend to write a history of physiology, yet he mentions some names that are less important than that of Magendie.

The subject of cerebrospinal fluid is dismissed by the author in half a page in one part, and a little over a page in another part of the book.

Cerebrospinal fluid certainly deserves much more consideration than a page and a half of space.

Urine is another subject that deserves greater attention in a textbook on physiology than is given to it by the author, especially since the medical student will have to refer constantly to the subject in his clinical study. The part dealing with the composition of urine is entirely too short for a modern physiology.

On the other hand, the section dealing with the mechanics of the heart is quite long, possibly out of proportion to other subjects. While we are aware of the fact that the author has done much research on the subject of circulation, the student does not like to read long treatises.

In general the book is easily and thoroughly written and deserves a place in the library of every physician.

THE HISTORICAL SOURCES OF DEFOE'S JOURNAL OF THE PLAGUE YEAR. By extracts from the original documents in the Burney collection and manuscript room in the British Museum. By Watson Nicholson, Ph.D.[2]

In these days of excitement, of new processes and new inventions, one seldom finds a person who is willing to give up his time to establish a historical fact or to correct a historical mistake. It is, therefore, gratifying to see the book of Dr. Nicholson, showing that Defoe's Journal of the plague, which has been considered mere fiction, is based on historical facts. The author spent a great deal of time at the British Museum, studying the records of the various plague epidemics in Great Britain. He claims to have established the historical accuracy of Defoe's Journal beyond doubt. The author should be commended for this hard but interesting historical research.

1. W. B. Saunders Company, Philadelphia, 1920.
2. The Stratford Company, Boston, 1919.

Actual Laboratory Conditions of Cleanliness Surround the Production of

HEBE

—the modern food discovery for Cooking and Baking

HEBE merits the interest of physicians, health officials, dietitians, public health and industrial nurses—those who are most concerned in community health and welfare. Scrupulous care is taken in the production of HEBE from the preliminary testing of dairy herds to the final sterilization of the product. Sanitary conditions safeguard every process, and the product reaches the consumer, pure and clean in hermetically sealed cans.

HEBE is a scientific emulsion of pure skimmed milk and refined cocoanut fat. These two highly nutritious natural foods in combination form a wholesome food product, rich in necessary dietary elements,—proteins, carbohydrates and fat.

HEBE contains all the solid constituents of the skimmed milk ***plus*** the heat and energy value of a scientifically processed vegetable fat. It is an economical, convenient and wholesome product, an ingredient in cooking, serving as an auxiliary to the daily milk supply.

HEBE is recognized not only as a healthful, easily digested food product, but also as an important addition to the human dietary. It reclaims for human food a part of the billions of pounds of skimmed milk which is ordinarily fed to live stock on the farm, thus adding materially to the food supply of the world.

HEBE is plainly labeled "A compound of Evaporated Skimmed Milk and Vegetable Fat." It is recommended as a liquid ingredient for cooked foods. It is not intended to replace milk for infant feeding.

The dietetic and economic importance of HEBE is of especial interest wherever a constant supply of pure, healthful food is a problem. We will gladly send upon request a booklet giving the complete facts about HEBE—Its Dietetic and Economic Value. Address 2822 Consumers Building, Chicago.

THE HEBE COMPANY

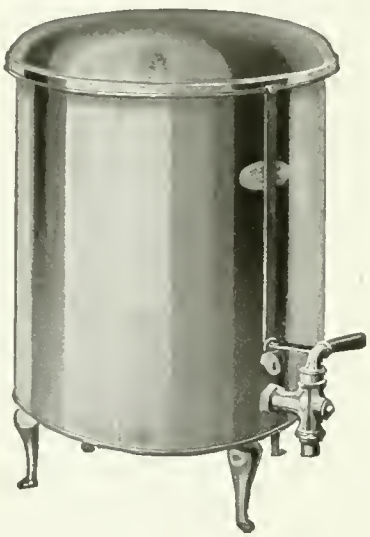
Chicago **Seattle**

Lyons Sanitary Milk Urn

Butterfats and Sanitation Speed without Slop Nor Waste

Clean, Rich Milk

FOR YOUR PATIENTS AND EMPLOYEES



Another Striking Feature of the Lyons Urn is that the cover and faucet can be locked after each meal.

Dipping Milk is Sloppy
Bottled Milk is Costly

YOU know that the cream rises to the top of the milk, and with all other make urns the first ones get all the skim-milk from the bottom, while the last ones get what is left—all the cream.

Lyons Sanitary Milk Urn is the only urn that dispenses milk containing the proper percentage of cream in each and every glass served, without any mixing, stirring, or other agitating mechanism, and it makes no difference whether the milk remains in the urn 2 minutes or 24 hours. Place the day's supply of milk in the urn and draw it out through the faucet as you need it, and the milk will always be sweet, clean, cold and fresh.

Lyons Sanitary Urn Company

235 EAST 44TH ST. NEW YORK CITY

INTERNATIONAL SANITARY CONFERENCE

The Sixth International Sanitary Conference of the American Republics will be held in Montevideo, Uruguay, December 10 to 20, under the presidency of Dr. E. Fernandez Espiro and the auspices of the government of Uruguay.

A PAN-AMERICAN CONFERENCE

Plans have been laid for a Pan-American conference on control of venereal diseases, to be held at Washington, probably in December of this year.

The American Red Cross has taken an active part in making this conference possible. It has the cooperation of the United States Public Health Service, the United States Interdepartmental Social Hygiene Board, and the American Social Hygiene Association.

The work of the conference, which will probably bring many leading thinkers of Latin America to the United States, will deal with three groups of problems in the control of venereal diseases, namely, the purely scientific, the administrative, and those which have particular public interest.

CUBAN ANTIMALARIAL MEASURES

Health work in Cuba during the past twenty months, ending in August, 1919, is reported in a recent issue of the *Boston Transcript* as having included important measures against malaria. The provinces of Camaguey and Oriente were selected for the demonstration, the district being covered by special civilian sanitary police whose mission was to discover paludies. Houses of patients were furnished with mosquito netting and the patients treated at home, when possible. Owners of plantations were furnished with quinin for their laborers, and educational posters were used. Examination was made of the blood of school children. Canalization and the clearing of all grass and shrubs about streams were practised, and in the drainage operations the government was ready to furnish plans for the plantations. Petrolization was found a useful process during the dry season. This work in Cuba fits in with many similar enterprises in the southern part of the United States.

DECLINE IN SUICIDE RATES

The observation that war service deflects the morbid tendencies of people with introspective habits of mind was borne out by the report of the Registrar General for England and Wales, which showed a decline of the suicide rate of more than 25 per cent in 1915.

The experience among industrial policyholders in the United States reported by the Metropolitan Life Insurance Company is interesting in this connection, as they show a very definite downward tendency in the death rate for suicide in the period between 1916 and 1919. In 1916 the suicide rate for white males was 15.3 per 100,000; in 1919 the rate was under 10, representing a decline of 37 per cent in the three year period.

The change was less significant among colored policyholders. The facts for homicide, on the other hand, do not show any such effect of war conditions as were apparent for suicide. Colored lives show much higher rates, with extreme conditions among colored males. . . . Among colored males homicide ranks third as a cause of death in early adult life, being exceeded only by the incidence of tuberculosis and the acute respiratory diseases.—*Statistical Bulletin.*

What of the New Bed?

Shall it be selected as a mere piece of furniture, or shall we choose it with proper regard for its comfort and sleeping qualities?

A BETTER appreciation of the health-building functions of sleep has resulted in new and different buying ideas than those which formerly influenced the choice and purchase of a new bed.

Not so many years ago, when the demands for additional sleeping accommodations emphasized the need of it, most people, when the time came to buy a new bed, simply went to their favorite furniture store and "picked out" another bed

If the bed thus selected "matched up" with the other furniture of the room, so much the better. If its parts were hard to fit together, a "man from the store" came over and bolted it together. If, later, its parts became loose, or if the joints squeaked and rattled, or if its crevices harbored vermine, everybody did what they could and made the best of it. Having no standard of bed *value*, quality or service, no one could be very particular.

Now the bed-buying ideas in every family are more exacting. Instead of being satisfied with the old-fashioned wooden bed, its noise-disturbing faults and loose joints, or the old time "gas-pipe-like" metal beds of unsightly memory, people are more discriminating.

Instead of going to the store for "another new bed," judging its merits and selecting it finally, as a piece of furniture—buyers are more and more considering its comfort and sleep qualities above all else. If it measures up to the Simmons standard—they feel secure.

Simmons Beds, *"Built for Sleep"* cost no more than perfect beds ought to cost—no more than anybody who values comfort and health will be fully prepared to pay.

The quiet elegance, simplicity and refinement of Simmons beds, their superior construction and the certainty with which they encourage sleep, make them essential to the health, comfort and efficiency of the people.

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

Appetizing Foods with Nourishment and Flavor

When every day's diet counts for rapid recovery and where it is so hard to provide nourishing and wholesome foods that tempt the appetite of the convalescent—then is the time to appeal to the convalescent through flavor. Flavor stimulates a desire for food to which it is added, and helps the convalescent to take the proper nourishment necessary.

The uniformly high quality of

SAUER'S
PURE FLAVORING EXTRACTS

made from the choicest materials obtainable and where every possible care is taken in their manufacture is widely recognized by the hospitals in the United States.

Various American and European Expositions have awarded seventeen highest awards to Sauer's Extracts for Purity, Strength and Flavor.

Further Particulars free on request.

The C. F. Sauer Company

Richmond, Virginia

NATIONAL DENTAL ASSOCIATION MEETS

The Twenty-fourth Annual Session of the National Dental Association will be held August 23 to 27, 1920, in the Mechanics Building, Boston, Mass. The program is of great interest and the seminar course clinic provided constitutes what is practically a post-graduate course in every phase of modern dentistry.

SUBSIDIZES MEDICAL EDUCATION

The University of Virginia, at Charlottesville, has raised an emergency fund of $12,000 to make possible the admission of a large number of applicants to the freshman class in medicine at the next session. The sum of $2,400 subscribed by the medical faculty formed the nucleus of a fund which is now sufficient to avert the necessity of turning away desirable applicants for medical courses.

NATIONAL ANESTHESIA RESEARCH SOCIETY MEETS

The National Anesthesia Research Society will meet with the Interstate Association of Anesthetists, the Pennsylvania State Medical Association, and the Western Pennsylvania Odontological Society in Pittsburgh, October 4-7, 1920. This will be one of the largest and most important meetings ever held to advance the science and practice of anesthesia. To stimulate the presentation of worth-while papers on researches in anesthesia, the N. A. R. S. will award money prizes for the three best papers submitted on this occasion. All activities of the meeting will be centered in the William Penn and Fort Pitt hotels.

NINTH ANNUAL SAFETY CONGRESS

The tentative announcements of the program of the Ninth Annual Safety Congress, which will convene in Milwaukee, Wis., September 27 to October 1, 1920, make mention of the fact that 179 speakers will address the various sections on some particular phase of accident prevention or industrial health work. Among the speakers announced are:

Samuel O. Dunn, editor of the *Railway Age*, vice-president of the Simmons-Boardman Publishing Company, president of the Associated Business Papers, Inc., and one of the most prominent authorities on railroad transportation, who will address the Steam Railroad Section.

Dr. Harry E. Mock, of Rush Medical College, Chicago, author of "Industrial Medicine and Surgery," a work that has become generally recognized as the standard textbook of industrial medicine and surgery, who will speak before the Health Service Section.

James Newton Gunn, president of the United States Tire Company, who will address the Rubber Section.

C. H. Clark, editor of the *Textile World Journal*, who will address the Textile Section.

Dr. Otto B. Geier, president of the American Association of Industrial Physicians and Surgeons, and Dr. J. J. Moorehead, formerly Lieutenant Colonel, U. S. A., both of whom will deliver papers before the Health Service Section. Dr. Moorehead spent twenty-three months on the firing line in France and was awarded the Croix du Guerre by the French Government for conspicuous bravery.

C. H. Baltzell, superintendent of the St. Louis and San Francisco Railroad, also will address the Railroad Section.

Grape Ola

is a delicious natural food drink, exceptionally pleasing and beneficial to everyone, from little children to grandparents.

Because of its healthful qualities and easy assimilation it is an ideal drink for the sick, the convalescent, and for general hospital use.

Its rich, ruby-red color and delicious grape flavor give it an unusual appeal to the most delicate appetite.

Grape Ola is not only a more pleasing drink than the ordinary grape juice, but much more economical. Quickly and easily made by simply mixing 4 or 5 parts water with one part of

Grape Ola Concentrate

One quart makes 30 glasses—No sugar required

A sample of Grape Ola Concentrate sufficient to make 7 or 8 glasses of Grape Ola will be mailed to any physician on receipt of 25c to cover cost of mailing.

Fill out attached coupon and mail to

GRAPE OLA PRODUCTS CORPORATION

12 West 22nd Street, New York

Enclosed is 25c for which mail sample of Grape Ola Concentrate to

NAME _____

ADDRESS _____

H

Flavor aids its effectiveness

Kellogg's Krumbled Bran has the distinct advantage of an appetizing flavor. Its pleasing taste encourages the patient to make its use regular as a diet for constipation. Yet it is whole bran—with full nutritive and laxative value. Kept fresh by "waxtite" sealed package to make it more tempting.

KELLOGG TOASTED CORN FLAKE CO.
Battle Creek, Michigan • Toronto, Canada

Electrically Lighted Surgical Instruments

Twenty years in the manufacture of electrically lighted surgical instruments, if it has not brought perfection in instrument construction, at least has kept the Electro Surgical Instrument Company abreast of the advances made by leading specialists of the medical and surgical profession.

So it is that instruments stamped "E. S. I. Co." speak of the accomplishments of the noted men whose suggestions are embodied in their construction and a service of maintenance possible only in instruments of our manufacture.

Users of instruments stamped "E. S. I. Co." are certain sharers in this service.

Origination begets imitation. Be sure of our exact name.

Illustrated Catalogue Sent Upon Request

ELECTRO SURGICAL INSTRUMENT COMPANY
Rochester, N. Y.

MENTAL HYGIENE STUDIED IN OREGON

A state-wide study of mental hygiene and dependency is being carried on in Oregon through the cooperation of the University of Oregon, the state health authorities, and the United States Public Health Service. This study was directed to be made by the Legislature in 1919. The work is under the direction of Dr. Chester L. Carlisle of the United States Public Health Service.

ASSOCIATION FOR MEDICAL EDUCATION

The work of the New York Association for Medical Education for the year was reviewed at a meeting held June 21, 1920. The work of the ensuing year will be in the hands of newly elected officers as follows: President, Dr. Haven Emerson; first vice-president, Dr. George David Stewart; second vice-president, Dr. Glentworth R. Butler; secretary, Dr. Otto V. Huffman; and treasurer, Dr. Arthur F. Chace. Dr. Wendell Phillips, the retiring president, was the founder and organizer of the Association.

THERAPEUTIC VALUE OF COLOR

Powerful curatives as well as mental sedatives are to be found in the use of properly selected colors, and in the right proportions, says Howard Kemp Prossor in the April issue of the *Medical Times*. Athletes find help in fixing their eyes on a red handkerchief before running a race. Scarlet rooms are beneficial for lazy boys, while blue at the other end of the spectrum is magnetic and soothing and helps concentration.

The fear created in men's minds by neurasthenia may be counteracted by using in the wards of such patients colors which generate strength and courage. Blue ceilings and yellow walls do away with the feeling of confinement between them. The combination of blue and violet has been found beneficial for insomnia. Headaches can be dealt with in blues, violets, mauves and greens.

Progress in the use of color therapeutics must be through a scientific knowledge of color in relation to proportion and vibration.

A GREAT MEDICAL AND DENTAL CENTER

A gift of $9,000,000 has been provided to establish in Rochester, N. Y., a school of medicine, surgery, and dentistry. The Rochester Dental Dispensary will furnish the clinic for the study of dentistry. The details of the project have been developed by Dr. Rush Rhees, president of the University; Dr. Abraham Flexner, secretary of the General Education Board; and George Eastman. The most modern laboratories for anatomy, physiology, and pathology, and a 250-bed teaching hospital are to be constructed, the hospital to afford clinical facilities for teaching purposes.

RATING SCALES IN INDUSTRY

A committee charged with the duty of reporting upon the value of psychology for labor misfits has declared to the National Association of Corporation Schools that it does not work out as a panacea for all ills. Such tests, they say, are merely to supplement and not supplant the usual employment procedure.

The Committee makes a distinction between the trained psychologists and a "great many pseudo-psychologists, vocational specialists, propagandists, and popular publications advocating the wholesale use of psychologic tests," as having been subjected to abuse and having failed to substantiate the fascinating possibilities claimed for it.

LEDERLE ANTITOXIN LABORATORIES

Hay Fever Prophylaxis

The uniform stability and antigenic activity of the product employed is of utmost importance

Pollen Antigen

Lederle

is so prepared that it's antigenic activity is accurately determined and so preserved that it's stability is assured

Complete Data Upon Request

Lederle Antitoxin Laboratories
511 Fifth Avenue, New York.

COLLECTING POLLEN FROM FLOWERING PLANTS
Lederle Antitoxin Laboratories

Puffed by Millions of Explosions

Puffed Wheat is whole wheat puffed to bubbles, eight times normal size.

Each food cell in wheat contains a trifle of moisture. We turn it to steam. Then we create in every kernel a hundred million steam explosions.

Every food cell is blasted. Digestion is made easy and complete.

The same process — Prof. Anderson's process—is used in Puffed Rice. And Corn Puffs are pellets of hominy puffed.

These three Puffed Grains are the best-cooked cereals in existence. And to millions the most delightful.

Puffed Wheat

Puffed Rice

Corn Puffs

The Quaker Oats Company

Sole Makers

DEVELOPMENT UNDER PHYSICAL TRAINING

Service in the Army during the world war gave an average increase per man of 3.35 pounds in weight and 0.23 inches in height, according to compilation of the physical measurements of 873,159 men. The average weight of men on being inducted was 141.54 pounds and the average height 67.49 inches, which were increased at the time of discharge to 144.89 pounds and 67.72 inches.

A decrease of one-tenth of an inch in height was lost by American men between the Civil War and the world war. The average height at the time of the former was 67.6 inches.

HEALTH ORGANIZATION OFFERS COLLEGE FELLOWSHIP

The Health Organization of America offers one year in Teachers' College, Columbia University,—September 1920, to June, 1921,—for the study of modern health education in the elementary schools, to be awarded to the best graded plan and outline for interesting children in the establishment of health habits. Details will be furnished on application to the Child Health Organization of America, 156 Fifth Avenue, New York City.

PUBLIC HEALTH INFORMATION

The New York County Chapter of the American Red Cross has opened a bureau of public health information on the tenth floor at 119 West Fortieth Street. It plans to serve as a clearing house of information for the eighty-three public health agencies in New York County. General information will be given on all phases of public health activities.

CHLORIN TESTS IN INFLUENZA

Tests in a series of 184 cases conducted at the University of Arkansas under the direction of Dr. Harrison Hale were reported at the recent meeting of the American Chemical Society in St. Louis as tending strongly to bear out the theory that chlorin gas is effectual as an influenza preventive. Eight hundred treatments were administered to 184 volunteers who remained for five minutes daily in a room containing a small amount of the gas. In only one of the series did influenza develop, but it was agreed that the tests were not carried out to such an extent as to furnish conclusive proof.

DENTISTS ENDORSE HEALTH CENTERS

At its annual meeting in Albany the New York State Dental Society went on record as approving the provisions of the Health Center Bill which was introduced into the last Legislature as a measure to provide health care for the rural population of New York, and a committee was appointed to cooperate with other organizations interested in health for the purpose of securing favorable action upon the Health Center Bill at the next session of the Legislature.

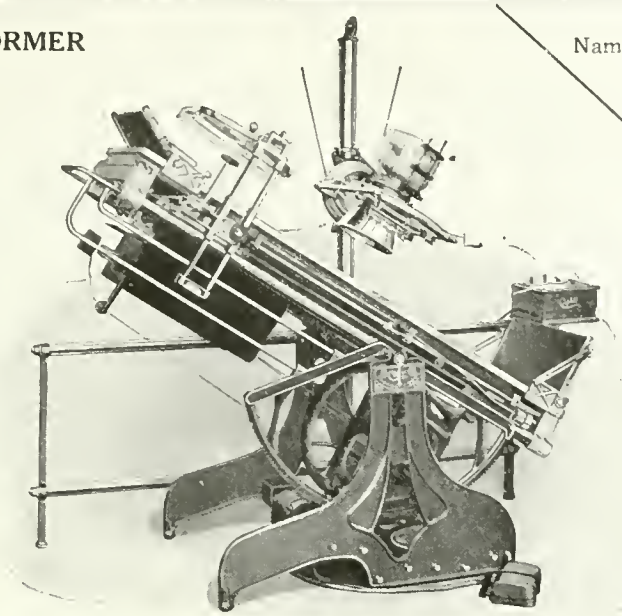
DIAGNOSTIC WORK IN TUBERCULOSIS

A course in the early diagnosis of pulmonary tuberculosis and methods of treatment is offered by the Wachusett Medical Improvement Society at the Rutland State Sanatorium. Lectures will begin Thursday, May 20, and

(Continued on page 32 Adv.)

TRANSFORMER TYPE TUBE TILT TABLE

A Complete X-Ray Plant for all Radiographic and Fluoroscopic Purposes



Name .....
St. .....
City .....
State .....
M. M.

Clinix

The Clinix in one of its many positions. Fill in coupon and send it to us for full descriptive literature.

Sold by Reliable Dealers

Campbell Electric Co. Lynn, Mass

Supported by Factory Service

Mixing Gelatine Desserts

ARISTON GELATINE DESSERTS

Have won their way to unquestioned recognition as the best which can be had.

The value of gelatine as a food is well known—its dietetic importance as a protein sparer, in combination with its acceptability as a dessert.

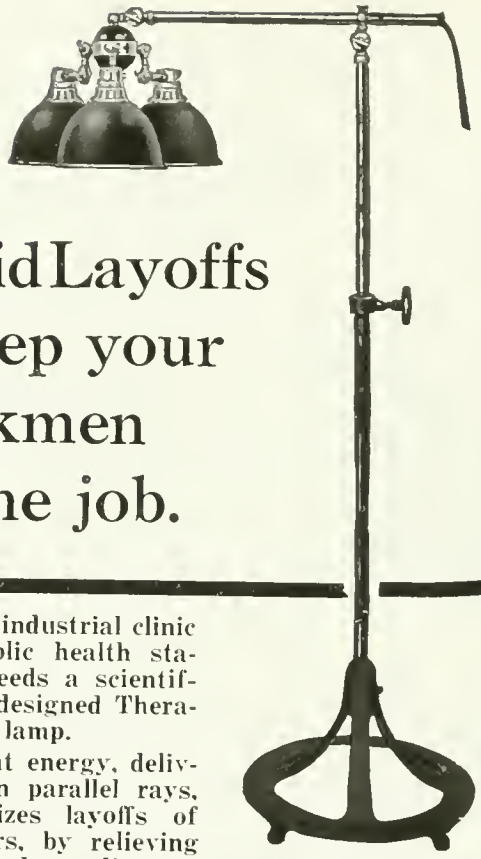
In preparation of Ariston Gelatine Desserts we use nothing but gelatine, cane sugar, fruit juices and citric acid—each of highest grade and purity.

Eight flavors: Vanilla, Strawberry, Raspberry, Orange, Lemon, Cherry, Grape, and Coffee; also plain, without flavor. In 6-pound cartons, one or assorted flavors.

CALUMET TEA & COFFEE COMPANY

409-411 W. HURON ST. CHICAGO

"Dealers Direct With You"



Avoid Layoffs —keep your workmen on the job.

Every industrial clinic or public health station needs a scientifically designed Therapeutic lamp.

Radiant energy, delivered in parallel rays, minimizes layoffs of workers, by relieving pain and speeding recovery through the use of

Thermolite
LIGHT AND HEAT INFUSER

Delivers Radiant Light and Heat in PARALLEL Rays
for the treatment of

Neuralgia	Rheumatism	Chronic Ulcers
Sprains	Neuritis	Local Infections
Lumbago	Arthritis	Dysmenorrhea

and many other conditions.

Because the rays are parallel, they bring quick relief from pain, reduce inflammation, and promote healing.

ThermoLite is supplied in two forms—the Triplex for hospital clinics and office use, and Simplex (single lamp with or without stand) for home use.

H. G. McFaddin & Co.

39 Warren St., New York City

(Continued from page 30 Adv.)

will continue Thursday of each week until June 24. The object is to promote the early diagnosis and control of pulmonary cases. The course is open to all physicians. The facilities at Rutland for the demonstration of all phases of the work, the range of subjects, and the personnel of the lecturers give ample assurance of the value of the course.

RATING OF BODILY MECHANICS

A physical examination of the first year Harvard men by Roger I. Lee, professor of hygiene, disclosed bad postures in 80 per cent and only 0.97 per cent were rated as having a good mechanical use of the body; 34.8 per cent used their bodies very badly.

"To be sure," says Dr. Lee, "their poor bodily mechanics is offset by youth and a physical condition otherwise good, but the result of this test certainly suggests that our preparatory schools might do much toward preventing poor habits of bodily use, and also that it is desirable for the college to undertake correction."

The good results of enlightment noted in the almost uniformly good condition of the teeth and the universal correction of ocular defects promise correction through physical education to bring to their best development the postural defects in these young men otherwise organically sound.

MEDICAL STUDENTS IN PRUSSIA

The *Deutsche medizinische Wochenschrift* announces in the issue of May, 1920, that medical students at the university now number 2,280 in medicine, 200 in dentistry, and 130 in pharmacy, this in a student community of 7,724 members, the number of these special students having doubled in the last five years. Five years ago the proportion of physicians was one to fifteen hundred people. The population having decreased, it is expected that within a very short time the proportion will be one to one thousand. The Prussian Minister of Public Instruction has stated that professorships in the universities are now open to both sexes.

HEALTH MEETING AT VANCOUVER

A joint congress was held at Vancouver, B. C., the week of June 21, 1920, between the Canadian Public Health Association, the Canadian Medical Association, the Canadian Association for the Prevention of Tuberculosis, the National Committee for Mental Hygiene, and the National Committee for Combating Venereal Disease. The meeting was of special significance in that statement was made of the Canadian health program for 1920, and joint discussions brought out both the needs of the field and the available measures for meeting them. Charles Lyman Green, M.D., of St. Paul, Minn., delivered an address on medicine before the Medical Association.

DR. HEKTOEN ELECTED PRESIDENT

The Chicago Medical Society, at its annual business meeting, elected the following officers: President, Dr. Ludvig Hektoen; president-elect, Dr. John S. Nagel; secretary, Dr. Hugh MacKechnie; treasurer, Dr. Clarence Leigh, counselors, Drs. J. H. Walsh, R. R. Ferguson, Joseph L. Miller, Malcolm L. Harris, John M. Jacobs, Jr.; alternate counselors, Drs. John F. Van Paing, Edward J. Devine, Daniel Lynch, Harvi Mai, George Griffin.

The roster of the organization, it was announced, was increased by 300 names in the last year. There are now 3,586 members.

CHRONIC DIARRHOEA

Ada Tungate—a case of Tubercular Peritonitis. Emaciated, abdomen distended, temperature 101. Physician prescribed spoonful of VIROL with whey every two hours. In one month the diarrhoea had ceased, child was normal, with weight increased. Doctor continued feeding VIROL for some months longer, substituting milk for whey. Child completely restored to health.

Diet In Infantile Diarrhoea

To each half pint of barley water or rice water add a half teaspoonful of VIROL and give one or two ounces of the mixture every two hours.

The role played by Virol in the treatment of diarrhoea has been elucidated by the remarkable recent researches upon phagocytosis.

There can be no reasonable doubt but that the marvelous results produced by virolizing the diet of both breast- and bottle-fed children are due to the opsoninogenic properties of the preparation.

It has been conclusively proved that the addition of Virol under suitable conditions enormously stimulates the phagocytic powers of the white blood cells.

Virol is composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars:
50c, $1.00 and $2.00.

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

Virol

More than 2,000 Hospitals and Infant Welfare Societies use VIROL in Great Britain

Sole Agents in U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

MERCK & CO. NEW YORK
MERCK
CHEMICAL WORKS, RAHWAY, N.J.

On Prescriptions—

Merck's

Anusol
HEMORRHOIDAL
Suppositories

No matter what the price, any remedy is expensive if its benefits are problematical.

Measured thus, Anusol Suppositories are among the least expensive standard remedies of the day.

Greatest possible results in the shortest possible time.

That's what counts.

Sample on request.

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX WHITE, RED AND BLACK LABEL AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

COLONIES FOR FEEBLE-MINDED

Dr. Charles Bernstein, superintendent of the State Custodial Asylum, Rome, N. Y., reports the experiment in agricultural colonization of high grade mental defectives carried on in New York since 1906. At present there are ten farm colonies for boys, all self-supporting after the first year. These farms cost the state from five dollars to ten thousand dollars each. The purpose of these colonies, as stated by Dr. Bernstein, is "to test out the boys and girls in an institution more nearly normal than is possible in a large institution. They live at first in the colony house, going out to work by the day. Later, if proved trustworthy, they are allowed to live at the house where they work, using the colony house as a social center for their leisure hours."

BELGIUM ESTABLISHES CHILDREN'S BUREAU

A children's bureau "to encourage and develop the protection of childhood" has been established in Belgium along the lines of the Children's Bureau in the United States. Direction will be by a central board of forty members with committees of six to twelve members in each province. Supervision of the local agencies will be under local committees and local authorities. Among other things, the infant consultation centers will provide regular and free examination of all children under the age of three in families under the care of the centers; free medical consultation service for expectant mothers; organization of educational work along lines of hygiene, and supervision over placed-out children under seven years of age.

OHIO SOCIETY CHANGES NAME

At the annual meeting of the Ohio Society for the Prevention of Tuberculosis, held in the city of Columbus, May 13, 1920, the name of the Society was changed to Ohio Public Health Association. This change was effected because of the fact that the Society had been doing other than tuberculosis work in the past and to place the organization in a position to keep abreast with the rapid strides being made by the State Department of Health. The new constitution of the Association provides as its object—"the prevention of disease, with particular reference to the prevention of tuberculosis."

A FEW GENERAL HEALTH RULES

A rational course of cooperation in matters of health and conservation was outlined by the National Women's Christian Temperance Union in a health pamphlet containing the following paragraph:

Don't dress so thinly that it will take more coal to keep you warm. Don't stagger about on high heels, for we must work like men. Cooperate with government plans for food conservation. Be ready with good wheatless and meatless recipes. Do all within your power to save 100,000 additional babies this year. During these very strenuous times we must strive to be at our best physically, mentally, and morally. We must do all we can to teach the people the laws upon which health depends.

THE WORK OF INDUSTRIAL NURSES

At the third annual dinner of the Industrial Nurses' Club of Chicago, held recently, statement was made that more than 100,000 first aid treatments for coughs, colds, bruises, and serious injuries were administered last year in Chicago industrial establishments. The speakers on the program were Dr. Harry E. Mock and Dr. Orlando E. Scott.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2. SEPTEMBER 1920 Number 9

SANITARY LAPSES

NOT long ago a campaign against the common drinking cup swept the country and in an incredibly short time laws and ordinances were passed in nearly all states and cities prohibiting the use of the common cup. No sanitary campaign has ever had such immediate and complete success as this one.

The common drinking cup was displaced largely by the drinking fountain. Various designs of such fountains were installed, usually without much study of the important question whether they would prevent the spread of infection. After installation they were frequently subject to neglect. The results may be seen in almost any tour of observation. Through faulty design, improper installation, lack of repairs, or lack of free flow of water, many fountains are a greater menace to health than the death distributing common cup.

The subject is one for sanitarians and health officers to deal with vigorously. Every day millions of people in industries, schools and public places drink from these fountains. Neglect in permitting improperly designed fountains to be installed, or defective ones to be continued, is a serious lapse from the high zeal which eliminated the common cup.

MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

THE annual conference of the American Public Health Association is to be held in San Francisco, September 13 to 17. The program will cover such important topics as health centers, organization of child hygiene, mental hygiene, narcotic control, food poisoning, and special matters relating to Western health problems. The divisions of the Association consist of Public Health Administration, Laboratories, Vital Statistics, Sociological, Sanitary Engineering, Industrial Hygiene, Personal Hygiene, Child Hygiene, and Food and Drugs, besides the general sessions of the conference.

THE NORM OF HUMAN NUTRITION

THERE are many cases of patients trying to recover from diseases on a diet that would not make a rat grow, nor keep it alive longer than one-quarter its normal term of expectation of life, says Elmer V. McCollum, in an article which appears in the July issue of the *Public Health Nurse.* Shortage of calcuim is one of the fundamental problems in human nutrition, and a dearth of vitamines the other. A great many people, particularly the employed groups, are living to the extent of 90 per cent or more of their food supply on foods badly chosen from the standpoint of their welfare. The appetite cannot be regarded as a safe guide at all for the nutrition of man or animal.

Biological methods in the laboratory have demonstrated the special dietary properties of foodstuffs so that it is possible to make diets which will produce normal or approximately normal growth, and to charge to certain faults in the diet —that is, faults of a secondary character—a rapid or premature development of senility. "We have a few people who are retaining the full vigor of adult life to an advanced old age," says Dr. McCollum, "but how many people do we see who are at thirty-eight or forty looking as old as they should fifteen years later," the point emphasized being that we are accustomed to regard as normal

something which is far below it in human nutrition, and the greatest single factor in the improvement of public health in this country is the improvement of the nutrition of the children.

A demonstration in nutrition among the children of an orphans' home resulted in gains in the weight of under-nourished children of from 50 to 70 per cent of their body weight in eight months time. The fundamental basis of all health is nutrition, and the biggest thing that can be done for improving the health of the people is to feed them right. There is no sense, says McCollum, in studying industrial fatigue, for instance, until it is first known that the individuals are well fed.

New classifications of foodstuffs are called for, based on the function of the article as food instead of on its chemical composition. In connection with the nutritional work among children he emphasizes (1) educational work among the children themselves and among the parents; (2) the keeping of records on the weight and measurements of all children, noting whether they are keeping the normal rate of gain. Milk is to be added to the diet, the unique dietary properties of the leafy vegetables are to be urged, and meat portions are to be cut down to about half the quantity to which we are accustomed.

S. P. M.

ROYAL MEEKER GOES TO THE WORLD LEAGUE

Dr. Royal Meeker, newly appointed director of the Scientific Division of the International Labor Office.

DR. Royal Meeker, who for seven years has been the United States Commissioner of Labor Statistics, has resigned to accept the position of Director of the Scientific Division of the International Labor Office, under the League of Nations. Dr. Meeker sailed for Geneva July 31 to assume his new duties. He will be principally engaged in the organization of the scientific office and in editing the *International Labor Bulletin* and other labor publications of the League.

The work of Dr. Meeker as Commissioner of Labor Statistics has been of special interest to physicians and social workers. Being keenly aware of the rôle of health and medicine in social and industrial problems, he gave a large amount of his time and that of the Bureau to the investigation and publication of data relating to industrial hygiene, medical care under compensation acts, budgets and the cost of living, health insurance, and rehabilitation of cripples. As secretary of the International Association of Accident Boards and Commissions, he did effective work in establishing higher standards among the industrial commissions and in emphasizing medical and social aspects of compensation laws. He has been a regular attendant at the conferences on public health, industrial hygiene, and social work, and has participated with rare power in the discussions.

The selection of Dr. Meeker to his new office is a recognition of his personal ability. Since the United States is not yet a member of the League of Nations, it was a special honor to be chosen to the important place which Dr. Meeker is to fill. His new position is one of great possibilities. The Scientific Division of the International Labor Office will be the center for the collection of data on labor conditions from every nation in the world. It will be ultimately the greatest source of scientific data available for the use of the governments of the world in solving labor problems, particularly the problems of health and well being of workers.

MODERN MEDICINE congratulates Dr. Meeker upon his new honors, but more particularly upon his new opportunities. In due time the world will come to seek his counsel on industrial betterment in the same way that the forward looking men and women of the United States sought his counsel during the last seven years.

THE CRITERIA OF SOCIAL PROGRESS

ONE hears on every side indictment of the present period as being one of class conflict, and claims are urged that the existing disorganization and class conflict exactly parallel conditions which preceded the fall of Rome. The postulate is as strenuously asserted that a new and better era is assured by the interest, never so general as now, in child nurture and other welfare movements looking toward physical and social betterment, and in the enlargement of the sphere of woman, who represents, not merely a sex, but a suppressed and dominated class.

Destructive criticism is as futile on the one hand as unwarranted complacency on the other. An exact estimate of the situation is called for, and a cool judgment on the basis of facts. Nor does it suffice to pay attention to but one aspect of the subject. Real progress must be well balanced and must proceed from different angles. The welfare of a people is not to be judged merely by material possessions. There is a direct relation between extreme poverty and the incidence of disease, but a satisfactory financial status does not insure right living, nor its lack necessarily spell disaster. The fact is not to be lost sight of that conditions of extreme wealth may be as inimical as poverty to real welfare. Over-emphasis of any single phase of the question is to be guarded against in framing a well thought out program that will reach all classes and take cognizance of all conditions.

We have been interested recently in the work of Todd[1] in formulating the conditions of social advance. He considers that interest in human well being is the basic test of general advancement. This interest must become more and more conscious and rationalized, must be purposive, and must have a projective aspect for the direction of future programs. Progress is not written in the nature of things, but comes as the fruition of conscious and persistent effort.

He formulates five basic tests for the validity of claims in regard to progress, the first two of which are of interest to physicians and health workers in particular. The population test would involve a high average expectation of life, no perceptible deaths from need or misery, increasing fitness of the average individual, steady improvement in the arts of life, and rising standards of living. Under his second test of increasing health and longevity he quotes an American representative of the medical profession as declaring that "the average length of life is the one and only sure index of whether the world is growing better; it is the unemotional but inexorable measuring rod of real social progress that can be told in figures. Other standards of measurement there are, but they are mostly vague, and founded largely on faith and hope. Here are statements that are based on definite statistical facts.

"In spite of many protests to the contrary, both health and longevity seem at the present moment actually to be on the increase. Throughout practically the whole of the western world the death rate is pretty steadily declining. M. Levasseur by comparing statistical studies of France in the eighteenth and nineteenth centuries discovered an increasing vitality in the French population, measured by decreasing or postponed mortality. Prof. P. C. Mitchell states that the mean duration of life in France rose during the nineteenth century from twenty-nine to forty years. In the United States the average age at death was 31.1 years in 1890, 35.2 in 1900, 38.7 in 1910. The average age at death is of course not to be confused with the average expectation of life, but it may be taken as an approximate measure of it; and in the absence of accurate life tables in the United States we have to content ourselves with such rough approximations. In Germany, within the last twenty-five years or so, average longevity has risen for males from 38.1 to 48.85 years; for females from 42.5 to 54.9 years. Professor Finkelnburg estimates that the average length of human life in the sixteenth century was only between eighteen and twenty years, and that at the close of the eighteenth century it was a little over twenty years, while today it is between thirty-eight and forty years,—a gain of 100 per cent in three centuries. Prof. Irving Fisher comes to the same conclusion from life-span records of Geneva, running back three centuries: they indicate a rise in the expectancy of life from 21.2 years in the sixteenth century to 39.7 in the nineteenth. As to the criterion of decreased physical suffering Doctor Osler writes. '. . . Measure as we may the progress of the world . . . there is no one measure which can compare with the decrease of physical suffering in man, woman, and child when stricken by disease or accident.' And Dr. E. T. Devine, who quotes the words with manifest approval, concludes that on the whole humanity meets this test and that health is rising.

"But we must remember that a pasteurized, sanitized society is not necessarily progressive nor dynamic. Health, long life, sanitation are contributors to social well being, but are not its only benefactors; they make it possible, but do not guarantee its increase or permanence." S. P. M.

1. Todd, Arthur James: Theories of Social Progress, The Macmillan Company, 1918.

THE CHILD HEALTH ORGANIZATION

By L. EMMETT HOLT, M.D., Chairman, Executive Committee, New York City

THE Child Health Organization was formed in the spring of 1918 for the purpose of improving the health of children of the school age. Surveys in schools in different parts of the United States had shown both in city and country fully 20 per cent of the children attending school to be suffering from malnutrition, that is, they were so much under weight that their condition should be regarded as serious. Besides, the selective draft had shown how large a proportion of the young men were rejected for physical defects or undernourishment. The consequences of the condition in school children were much preventable illness, much poor work in school due to purely physical causes, and a generation of boys and girls growing up who were physically definitely below par.

The program of the Child Health Organization has included four definite items: (1) To make the teaching of health an essential part of education in all schools; (2) to encourage and promote nutrition classes for the undernourished, and to improve health and nutrition by school lunches; (3) to educate nurses, parents, teachers, and others as to proper foods for growing children; and (4) to extend and improve medical school inspection and the removal of defects interfering with their growth.

The first step in any well rounded health program is to weigh the children once a month and have them record their weights on the class room weight record

Since the methods used to accomplish the last three mentioned parts of this program have not differed essentially from those previously employed, we shall discuss in this paper chiefly the ways and means by which the first one, *viz.*, teaching health to children, especially in the schools, has been attempted and the degree of success which has attended effort in this direction.

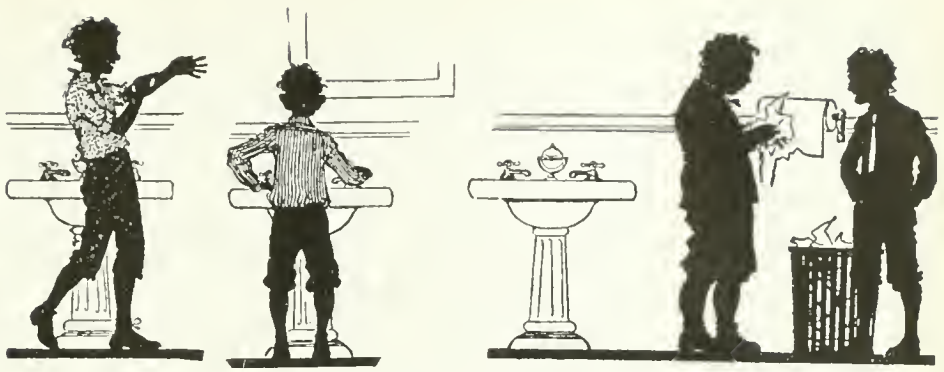
In this work we have had the active cooperation and support of the Federal Bureau of Education through Commissioner Claxton, and Secretary Lane of the Department of the Interior, and, later, of his successor, Secretary Payne. This has been made possible by the appointment of one of the staff of the Child Health Organization to a position in the Department of Health Education of the Bureau of Education.

It is recognized that all health measures which lead to permanent results must rest upon an educational basis. By the education of the mother in infant feeding and hygiene the very marked reduction in infant mortality has been brought about in the last fifteen or twenty years. This reduction in New York City has brought the infant death rate in a generation to one-third the former figure.

A knowledge of health laws is not instinctive; if children are to know they must be taught. It was believed that the health problem of the school child could not be solved without teaching the child himself and securing his cooperation. It was equally clear that before a child can be taught or influenced in any way he must be interested. How to make health interesting, therefore, was the first aspect of the problem which the Child Health Organization has found it necessary to solve.

Teaching health to adults is always difficult and usually unsatisfactory, and the greatest mistake made in health education in the past has been that the instruction has been directed almost entirely

to the adults of the community. It is hard for them to unlearn what they have been taught in childhood. They are often grossly ignorant in regard to the nature of disease, how it is caused, how it is spread, how it can be prevented. Their superstitions and prejudices make it difficult to influence them. Their minds are very resistant to new ideas which affect such fundamental things as their food and their health habits. It is found most difficult to make them follow the simplest rules, even for the protection of their personal health in the so-called dangerous trades in which special precautions are necessary to prevent disease.



The routine of the school day should be so organized that it will afford an opportunity for continuous practice in the ways of health.

It is becoming increasingly evident that we have begun too late with our health instruction. The child is the fittest subject in which to instill proper health knowledge. He has no prejudices to overcome. It was believed that if right methods were employed it would not be difficult to interest the child in health or to influence him in the formation of good habits. In most matters habits are not yet formed and it is almost as easy to form good habits as to form bad ones. All of these things combine to make childhood the golden period of life in which to teach health.

While the education of the mother in the care of the healthy infant has reduced infant mortality, for several reasons this has as yet accomplished very little so far as the health of the older children is concerned. The first and perhaps the most important reason is because of a lack of knowledge by the mother herself in regard to the health rules which should be taught and the health habits which should be practised by older children; and, secondly, a lack of interest on the part of the mother in this problem. She can more easily grasp the importance of obeying the health rules taught her regarding her baby, for unless properly fed and cared for, she can see that the baby does not thrive and that he may die for lack of precaution in these matters; whereas, she does not so readily appreciate that failure in regard to the older children have results which are less obvious but which may be shown in such conditions as general malnutrition, slowness in growth, anemia, chronic indigestion, extreme nervousness, want of concentration, or poor work in school, etc., —things which have a highly important bearing upon the ultimate physical development and vigor of the child. It must be admitted that we as physicians have not always given the mother the direction and help she needed.

Health Should be Taught in the Schools

Again, the home control by the average mother of the child after he has reached the school age is usually lax and in very many cases is entirely lost. When a child has reached this period in his life, some influences other than those of the home must be brought to bear if a strong impression is made upon his life, certainly in matters of health. We are forced to the conclusion that the school is the place where health instruction must be given to most children, if they are to get any proper health instruction. Although it may perhaps seem to many that the curriculum is already over-crowded and that school teachers are overworked, it would seem that a place must and can be found for such instruction of the right sort in the schools. The school curriculum needs some radical vision, and a departure from the old deep-worn ruts is surely worth consideration.

Certainly the opportunity which the school offers for health education has hardly been recognized. In the school the child is under continuous observation for eight or nine years; his attendance is compulsory; he can not if he will altogether escape the influences of education; and the school has the machinery for teaching. The opportunity here to give instruction to children in groups is very important, for it is usually found that instruction to groups can be made more impressive and commands more attention than that given to an individual child. Again, the long period of school life permits a great variety of health teaching, from the simplest things taught the youngest, with graded instruction for those who are older, to the wider knowledge which can be given the oldest. Much more can be done in school than even in the most enlightened homes; in fact, the home itself is often best reached through the child.

Now exactly what do we include under health teaching? How much health knowledge can be imparted to children by teachers who are not health experts and who have not had the advantages of special training?

The Health Instruction Given to Children

There are clearly two distinct kinds of health instruction. One of these relates to matters of public or social health and is largely concerned with the prevention of diseases which may spread through the community. The relation of these scourges to faulty hygiene and sanitation, the fact that they may be spread by unhealthy persons who handle food, or through contaminated milk or water supply, or by mosquitoes, flies, rats, lice, or other vermin, and that many of these diseases can be communicated from one person to another —all are things which may easily be understood by older children. They then come to recognize the importance of sanitary laws for a community and will generally be found to be the most conscientious observers of these laws. They can appreciate what it means to have the milk and water supply of their city closely watched by experts, the value of clean streets, the necessity for proper disposal of sewage, and garbage. They can understand also why quarantine is necessary in communicable diseases and readily accept this curtailment of individual liberty for the sake of the rest of the community.

The results of the campaigns against tuberculosis, malaria, typhoid, yellow fever or small-pox should be made familiar to all, and there is no reason why much of this should not be given in the schools. These stories, when properly presented by one who knows how to write for children, can be made interesting, even thrilling.

The economic value of health is something even a child can be made to appreciate when he is shown, for instance, what it has meant to the prosperity of some parts of the world to get rid of malaria and how this made possible the building of the Panama Canal.

Much good health literature for children has appeared in the last few years, but very little of it has as yet found its proper place in the schools. If only we can get the children in our schools *interested* in the great public health problems, it is not going to be difficult to secure adequate health legislation or public support for the enforcement of any advanced health measures which may be in the future become necessary. The older children in our schools will very soon form our voting population and their education along the lines suggested is most important if we are to have a public intelligent in these health matters.

The other phase of health instruction is that which might in contrast with the foregoing be termed private or personal, and this seems much more important even than the foregoing inasmuch as it is concerned with the *promotion of health* rather than the prevention of disease. It is to be carried on along quite different lines from those employed in instruction in public health. It should be begun with little children of six or seven years. Here the chief purpose should be to stimulate the formation of good health habits; the aim, to rouse to action, not simply to teach rules. For this end only such knowledge of the functions and needs of the body is required as to make the child understand what is necessary for its protection and care, or enough to form the basis of good health habits.

The child can easily learn the essential needs of his body, such as proper food, cleanliness, fresh air, exercise, rest, regular bowel movements, etc.; also the things that do harm, as improper food, decayed teeth, excess in eating or drinking, lack of proper sleep, the use of tea or coffee, alcohol, or drugs. It is self-evident that before children can be influenced they must be interested. How to do this is the problem. The aim of the Child Health Organization is to get instruction in all these matters into the school as a part of daily routine.

Methods of Arousing Interest

The interest of many children, especially those under ten years of age, can be created by the credits given for regular performance of the so-called "Health Chores" of the Modern Health Crusade and various health leagues. When these "Chores" have been repeated a sufficient number of times, the hope is that they may become fixed habits. The practical objection to many of these organizations is their complexity and the amount of time required not only by pupils but by teachers in carrying out the scheme. It is argued that the novelty of these things wears off after a few weeks or months, and something more than the reward of the gold star is needed to secure the effort necessary for permanent results.

CHO-CHO, the health clown (christened with the initials of the Child Health Organization), is a professional clown who entertains large groups of children while he instructs them in matters of food and hygiene. The following communication from a teacher indicates the reaction to his appearance in a public school in Chicago:

We plan to send you compositions from every grade, concerning the marvelous lesson that CHO-CHO gave to more than 1,700 children and forty-four teachers on "What is Good for Children." He is a real teacher and a marvelous one. He held the children enthralled for over

an hour and he taught them many, many valuable things in such a brief period—so much indeed that we wonder if we do not lose time sometimes as teachers by being so humdrum and undramatic. CHO-CHO stirred us all up, literally and figuratively; please send him to us again some time. The children's opinions will follow later. With deep appreciation for this rare pleasure.

The "Picture Man" is a cartoonist who entertains large groups by amusing sketches relating to foods and health habits while he discourses on these subjects.

The "Health Fairy" is a trained nurse of magnetic personality who interests the children by fairy stories which teach health lessons. The above are all agencies designed by the Child Health Organization to introduce the subject of health to young children and serve to awaken primary interest; they are followed up by other methods. Valuable use has been made of the dramatic instincts of children in the production of little health plays, and they have even been encouraged to write such plays themselves. In brief, the effort is made to make health instruction play in some form, with the belief that in this way greater interest can be roused and a deeper impression made. Children are taught to make health posters of their own, as these have for them far greater value than posters done by the best artists. This work must be stimulated and guided by those who know child psychology.

In such ways the essential facts regarding necessary foods and food values and important health rules can be impressed upon the child, who is quite unconscious of the fact that he is being taught physiology and hygiene.

Attractive literature has been produced with pictures and health rhymes for little children which has had a wide influence. The most important piece perhaps is the Child Health Alphabet by Mrs. Frederick Peterson, of which already more than 2,500,000 copies have been distributed.

Group Competition Employed

Probably the simplest and most widely useful of all the means of interesting children of all ages and one which involves the least time and labor in its application, and the most potent influence in maintaining an interest in the observance of the rules of health, is group competition based upon the record of height and weight. Largely by means of the scales, the mother has been taught the meaning of the weight of infants and the importance of an increase in weight as a measure of her baby's progress in health.

It is the state of nutrition which the scales record, and normal nutrition in infancy spells health. In older children, also, the same thing holds true to almost the same degree. Here also the condition of nutrition is a good index of general health—the best index, we believe. This is shown first by the child's weight for his height, and afterward by his regular progress in weight. Normal growth and development depend upon the nutrition of the body; the things which affect nutrition are therefore the most important ones which must be emphasized in health education. To the physician the essential habits of daily life which are necessary to healthy growth are known as the laws of health; to children they are taught as the "rules of the game" and are practised by them in the spirit of a game—a competitive game, too.

Weight contests have been widely used. Those who are up to normal weight for height receive a yellow tag, and those who are below, a blue tag. The normal weight for the child's height is placed on one side of the tag and also his actual weight. On the reverse are simple health rules which all children should observe.

Where weights are taken in school they are entered each month upon a special class room weight record which has been distributed through the Bureau of Education by the hundred thousand to schools all over the country. The influence of this is very great, as the weight is something concrete which the child's mind can grasp. Such weight records and the health teaching which can be tied up with them are continued throughout school life.

Let us see how this works out in practice. There must of course be scales in all schools, so that every child is weighed and measured at the beginning of the school year and weighed monthly thereafter. The weighing time is a solemn occasion—a sort of monthly day of judgment. Each child is anxious to maintain his standing and to make progress. When the results of the weighing are known, one teacher comments to the class somewhat as follows:

Now will all the children who are up to their normal

It is the purpose of the physical examination to discover a child's strong points as well as his latent weaknesses and incipient physical defects, so that his health regimen may be closely adjusted to his individual needs.

weight for height stand up. Children, I could tell it by your looks—your bright eyes, your rosy cheeks. I could tell it by the way you play at recess, by the way you stand, by the way you carry yourselves when you walk, by the kind of work that you did in school last month, etc.

Now I want all who gained in weight last month to rise. That is fine!

Now boys won't you tell us how you did it?

Many hands go up, each anxious to tell his experience. No comment is made upon those who are below weight, nor on those who have lost weight in the month. It may not be the child's fault. There is constant praise and encouragement for those who succeed, but no word of condemnation or reproof for those who fail. It is not needed. In such a school health becomes "the thing," and a public opinion has been created which nothing can withstand. The child is competing not so much with his mates as with his own record. One child came to his teacher and said confidentially: "Something dreadful has happened."

"Why, what is it, Henry?"

"Do you know that I lost a pound and a half last month?"

"I'm so sorry," said the teacher.

"But," Henry continued, "I think I know just what did it. I was going to bed at half past nine when I know I ought to be in bed at eight. I'm not going to be caught that way again."

This is the way we brush our teeth, brush our teeth, brush our teeth—all on a Monday morning!

Essentials of Health are Simple

When a child is found much below weight, when he is not gaining or when he is losing weight, he is at once anxious to know why. Which rule is he breaking, the one relating to food, to hours of sleep, tea and coffee, or what? Now is the occasion to stress the health rules. He is eager to learn; he wants to be in the healthy group. He is ready to submit to a medical examination, willing even to have tonsils and adenoids removed or teeth extracted, if these seem to be the cause. As these records of health progress go home to the mother on the monthly report card, her interest is soon awakened and with little difficulty her cooperation can be secured; in fact, the child's zeal often makes this inevitable.

When a child has learned in school that to get up to his normal weight or to gain weight he must go to bed at eight o'clock and not play in the street till ten or eleven; that he must drink milk, not tea and coffee; eat regular meals and not fill his stomach with trash between meals; must eat a variety of food cereals, green vegetables, fruit, etc.,—does anyone for one moment believe that such habits formed in childhood during school life will not make a lasting impression upon the life of the individual? Too much emphasis cannot be placed upon the fact that the essentials of personal health are such simple things as these, and that even the untrained teacher, once she is interested, can carry them into effect.

Just now one of the greatest needs is the development of systematic graded courses for health teaching for children of all ages, from the primary grades up to the normal schools. This is the problem which at present is engrossing the attention of the Child Health Organization. With the youngest we must begin with the simple, the dramatic and picturesque, the things which touch the child's imagination. Other more serious things taught in other ways must follow. In all this instruction the emphasis must be placed upon the *promotion of health*, not upon the avoidance of disease. We must appeal to the play spirit and learn to utilize it in our health teaching.

Let us not deceive ourselves with thinking that already there is sufficient health teaching in the schools through instruction which is given in physiology and hygiene and in domestic science, or even in much of the physical education as now carried on. This instruction has not brought about the results which we are seeking. The reason for failure is that it has not been linked up with practical life. It has influenced the every day health habits of the child little more than his study of arithmetic or botany. Other methods than those previously employed must be used if the end we seek is to be attained.

When a group of children in a school has been weighed and measured it is found that a certain number are much below weight for height, are not making normal progress in weight, or perhaps are making no progress at all. These are brought together in a special group for particular, individual study to discover the cause and, if

possible, remove it. First of all, a general medical examination should be made to ascertain whether the condition depends upon some disease such as cardiac disease or early tuberculosis, whether it is due to some defect which interferes with normal growth, such as large tonsils, adenoids, or carious teeth, or whether it is due to bad habits, such as late hours and lack of sleep, or to insufficient or improper food.

The children forming the nutrition class need to be weighed weekly and seen frequently; cooperation with parents must be secured, and the children kept under close observation until the faulty conditions have been corrected and their general health improved. The nutrition class is probably the most important newer health agency of this decade and bids fair to accomplish for older children what the milk station or "consultation" has done for infants. But such classes are needed, not simply for the under-nourished, to bring them up to normal, but for those whose condition is now good, that they may be kept well and reach the best physical development of which each child is capable.

The School Lunch

The importance and value of the hot school lunch in improving the nutrition of children has long been recognized in Europe, and in this country it has been widely pushed in recent years. The Child Health Organization has especially stressed the educational value of the school lunch, pointing out the great opportunity which is here offered to teach children foods which are proper and necessary for growth, food values, and food costs. Especially has the value been urged of teaching children of foreign parents to eat our American foods. This is not difficult when children are fed in groups, but almost impossible when they are taught singly.

Medical School Inspection

The chief points in medical school inspection which the Child Health Organization has endeavored to secure are that every child on entering school should have a complete physical examination and that this should be repeated once every school year. Such examination should be made not for the exclusion of contagious diseases, nor the recognition of defects such as those of vision or hearing, carious teeth, enlarged tonsils, and adenoids, but to determine the condition of the child's nutrition and seek other causes than those mentioned which might explain his impairment.

Efforts have been made to secure from school authorities and teachers a recognition of health as an essential subject of education, to consider the importance of health conditions in relation to the intellectual work of the children, and, more than all else, to secure cooperation between the schools, the health authorities, and the home in making effective the program outlined at the beginning of this article.

Although the Child Health Organization has been in active operation only a little more than two years the methods which it has developed have now been duplicated and many features of its work have been extended to every state in the Union and to many foreign countries. One of the points which was first stressed was the necessity for placing scales in every school. Four thousand replies to a questionnaire sent out broadcast over the country through the Federal Bureau of Education show that scales have already been placed in one-fifth of the schools of the country.

STEWART SUCCEEDS MEEKER

Ethelbert Stewart, United States Department of Labor Statistics.

Ethelbert Stewart, long identified with the United States Bureau of Labor Statistics and the Department of Labor in various capacities, has been appointed Commissioner of Labor Statistics to succeed Dr. Royal Meeker, who resigned to assume the position of Director of the Scientific Division of the League of Nations, Labor Division.

The appointment of Mr. Stewart assures the friends of the Bureau that the policies which have made it one of the foremost social agencies of the country will be continued.

THE PSYCHOLOGY OF THE SICK CHILD

By A. LEVINSON, Chicago

THE sick child differs from the well child not only physically, but also psychologically. Not all children react to disease in the same manner, nor do all diseases produce the same mental reaction in a given child, but, as a whole, there are certain psychological changes which take place in the sick child that are characteristic of practically all sick children and of nearly all the diseases to which they are subject.

The child explores its environment through progressive activities, instinctive at first but gradually coming under its own volition and becoming coordinated as its various gestures gain meanings and become associated with accomplished ends.

When its interest is awakened, deliberate imitation and conscious copying of the acts of the people develop the adaptations society requires of the individual.

A wholesome environment, with intelligent direction, during the plastic period of childhood enables the fullest possible development of individual and social capacities. This applies not only to the well, but even to the sick child.

In order to understand the sick child, naturally one must know the healthy child. It is therefore pertinent to discuss first a few essential points in the psychology of the healthy child.

The child's mental attitude is not fixed; it is constantly moving, continuously progressing. There is the newly born child, who apparently knows nothing more than to crave for food. Before long the same helpless baby begins to coo, to recognize persons about it, to talk, to walk, perfecting himself progressively. Certain mental peculiarities, however, are retained all through infancy and childhood, the following being the most constant:

Infants Are Normally Active

The normal child, from birth to adolescence, exhibits a more or less constant desire to do something. Normal infants are constantly active when awake. Sometimes they expend energy in playing, by swinging their arms and by kicking their feet, thus exercising the muscles of the extremities. Sometimes they expend energy by their vocal cords and laryngeal muscles by crying and talking; at other times they exercise the muscles of their jaws by eating or making grimaces. At times one wonders how it is possible for an infant, or for a child of three or four to be active from early morning until late at night. The child appears to have double, triple, and perhaps even tenfold the amount of energy of an adult. The amount of energy expended by a child two or three years of age is tremendous in comparison to the body weight and height. Play, which is usually considered as one of the fundamental characteristics of infancy and childhood, may be regarded as a subheading of work. Play, as indulged in by a child, is simply a form of work in which all the different muscles are more or less vigorously exercised.

If proof is wanted to the theory that man is the outgrowth of an ape, the quality of imitation may supply it. Almost everything the child learns to do is acquired through imitation. The connection of imitation with the problem of child education is well worth keeping in mind. The only function that the child does not acquire by imitation is that of eating, and, while the craving for food seems to be an inborn instinct in the baby, it is possible that closer observation may reveal that even some aspects of the act of taking food are acquired by imitation.

The Child's Imagination Wanders

Although a strong imaginative sense survives in comparatively few adults, we find that all children or, at least all normal children, possess a remarkable power of imagination. It is no mere incident that most children like fairy stories. There is something in a fairy story that fires the imagination of the child, that carries him away to other spheres, that gives his imagination a chance to stretch to worlds not limited by time or space. It is to be regretted that children cannot express their imagination in writing, and that few writers know the child mind well enough to picture the flight of childish imagination. Were the child able to give expression to his imagination on paper, we would no doubt have a poetical literature the like of which has never been seen. The child is able to picture incidents in life that to our cold-blooded minds appear impossible. We, who see everything from the standpoint of bread and butter; we, who measure space by yards and miles, and time by minutes and hours, cannot let our imagination wander very far. As soon as we conceive of incidents that seem to be a little

*Reprinted from the *International Clinics*, 1920, Vol. ii, Series 30, by courtesy of the J. B. Lippincott Company.

out of the way, our limited, but at the same time materialistic experience confronts us and stops us; our fancies are censored; this is pronounced impossible, and that unplausible. The child mind, however, admits no limitations of time or space. What is to us a day or an hour may seem to the child a thousand years. Imagination plays one of the greatest rôles in the life of the child. He hobnobs indiscriminately with prince and pauper. He taken delight in acting the part of his imaginary hero, who is sometimes a king, sometimes a mighty general, sometimes a wonderful magician. He revels in the art of everyday make-believe. He will pretend that he is his own father, mother, sister, or brother; that he is a dog or bear; a puffing steam engine; and what not. Nothing is too good or too bad for him; nothing too big or too small. His breadth of imagination transforms everything.

Fearlessly Demands Justice

For years, nay, for centuries, people who crowned themselves with the titles of philosophers and leaders have advocated as "the truth" that men are born bad and that it is the function of religion and education and the duty of teachers, priests, and political leaders to direct humanity to the right path; but if one looks at matters squarely it must be conceded that the child not only likes fair play, but often fearlessly demands justice. One of the reasons why children love fairy tales is because they have a sense of justice, which is the basis of nearly all fairy stories. Whatever may happen during the course of a fairy tale, everything turns out right in the end. The bride and groom live happy forever after; the money stolen from the hero is returned to him in the form of a hidden treasure; the princess who was killed in the attempt to save her lover is transformed into a dove and thence into a human being; the wise man who was executed because the king disapproved of his advice returns from heaven riding on a horse. These endings are all expressions of the child's sense of justice, and, to my mind, the search for justice and the love of righteousness is a strong characteristic of the normal, healthy child, which remains with him to the time he comes into contact with the superficialities of civilized life.

What is perhaps the most important, healthy children are happy by nature. The pictures on the wall, the flowers in the garden, the sun, the moon, the stars—all are sources of happiness to the child. Even little spurts of temper expressed in a stamp of the foot, in a dash of the precious toy do not last long. The fit of anger passes in a few minutes or seconds, and happiness is again restored. Children find cause for laughter at the pettiest thing—a grimace, a shrug of the shoulders, not because of the inherent fun in the object, but because the child itself bubbles over with energy and happiness.

The Psyche Changed in Sick Child

When a child falls ill, no matter how slightly ill he may be, all normal psychological characteristics either disappear or are perverted.

Fever uses up his surplus energy, so the sick child does not want to work; indeed, he cannot work if he would; since he cannot work, he also ceases to play, for, as previously stated, play to the child is but another form of work.

A sick child soon loses cognizance of its surroundings. In sickness even adults center most of their thoughts on themselves, a tendency, however, which is not so marked in adults as in children. Most children, although they do not want to be left alone when sick, cannot bear to have their parents or nurses do anything in their presence that would call for an expression of imitation; in fact, attempts to please often bore or even anger the sick child. You cannot teach a sick child. You cannot even attract its attention to anything outside of its sickness.

Although two properties, activity and imitation, are notably absent in the sick child, the power of imagination is stronger than usual and is directed along morbid channels in time of illness. The fairies give way to witches, and sunshine to storm. The child imagines he sees robbers approaching, dogs barking, horses tramping, and he feels that all of them together are contriving to do him harm. Of all the stories he has heard during his life, only fragments return during his sickness. The wise man the king has ordered killed does not reappear as an angel or dove to bring happiness to the world. The princess does not return to her lover. In effect, imagination becomes hallucination, and justice is turned into injustice.

Disease Depresses the Child

As for happiness, it is self-understood that the sick child cannot be happy. There is only one disease in which the toxin seems to exert a stimulus to make the afflicted person hopeful. Physicians and nurses who work with tuberculous people claim that tuberculous patients, as a rule, are confident that they are going to get well, and at times are even happy. However, with this one exception, disease exerts on the patient a depressing effect, which is doubly noticeable in the young. The child drops his head down on the pillow, and he does not dare to raise it; as if he were afraid that something would befall him if he did.

At times it may seem as if the patient were contented, but the expression of his face tells a different story. The happiness that lights up the face of the normal child disappears, and an expression of sadness takes its place. It is not merely pain that robs the child of his happiness; it is the sick feeling, the lack of confidence in himself, the absence of healthy imagination, and the loss of the prevailing sense of justice that robs the child of his happiness and fills him with gloom.

Practical Application

Can a knowledge of the psychology of the sick child be utilized in practice? Is it necessary for a physician or a nurse, who deal with sick children, to possess a knowledge of the psychological moods of the healthy and the sick child, and is it possible in turn to make use of this knowledge for the benefit of the child? There can be no doubt that a knowledge of the child's attitude can and should be utilized by the physician, nurse and social worker, and that without a knowledge of the psychological pecularities of both the healthy and sick child, it is hardly possible properly to attend a sick child. In dealing with a child one is confronted not only with physical ailments, but also with a complicated nervous mechanism which has not had sufficient time to stabilize itself, which has had no time as yet to tread out paths, or to form habits. The child is motivated not from stored-up energy, but from sense impressions, from imaginings, and unless it is realized that in treating sick children one is dealing with a shifting pathology which has taken the place of a constantly changing physiology; he is helpless in the face of any ailment in the child, be it pneumonia or a hangnail. The physician who knows the child from a psychological standpoint as well as a physical, the physician who can win over the child—which usually also means winning the mother and at times the grandmother—is the physician who is usually most successful, the measure of his success being more apparent in the actual results he obtains than in the routine of mere medical treatment of the child. Such a physician usually understands the responsibility placed upon his shoulders in treating children.

What is true of the physician is doubly true of the nurse. The nurse is put in charge of a sick child, not only to administer medicine, but, also, to feed the child, to make him comfortable, and to do everything she can to help him on the way to recovery. In order to obtain these results the nurse has to take the place of the mother—a very difficult position to fill; for, no matter how good the nurse may be, she will have to go far to be as good as the mother, and no matter how kind she may be, she will have to exert every effort to be as kind as the mother. The child has been given over to the care of the nurse especially because she is not the mother, and on this account can keep a clear head in case of danger, whereas the mother would be overcome by her emotions. It therefore behooves the nurse to make a study of the child's moods and habits and the changes of these moods and habits during disease. The nurse must realize that the child who acts cross and peevish during illness has not always been so. She must realize that the child who now seems too lazy to do anything for himself, and who demands that she do everything for him, at one time worked like a little beaver merely for the sake of working. She should also know that the child to whom no toys are now acceptable at one time spent hour after hour in playing with a jagged stick, a broken doll, a legless chair. The nurse must realize that the child is passing not only through a physical crisis, but also through a mental one, and she should therefore make it her duty to help the little patient pass through the ordeal before him in as quiet and peaceful a manner as possible. To be a nurse for any patient requires a great deal of patience; to be a children's nurse, one must have limitless patience, superhuman endurance, and heavenly kindness.

Must Bridge Mental Crisis

The change in the mental attitude of the sick child is doubly pronounced if the child is at the hospital. In addition to the disease itself, which tortures the little patient, several other factors add to its distress: the change of surroundings, the sight of strange faces, the shock of being away from mother and father. It is hard enough for an adult to change his mode of living in one day; how much harder is it then for a young child to be robbed all at once of his mother, who has been the only person he has known intimately all his life, and left to the mercy of a stranger whom he has never seen before. If the nurse understands the mental attitude of the sick child, she cannot help but act the part of the mother during the child's stay at the hospital. She should make the hospital atmosphere as homelike as possible; she should help the child bridge over the mental crises that confront him; she should employ all means possible to restore to the child the normal psychological functions that characterize him in time of health—activity, imagination, love for justice, and happiness.

Relation to Social Service

Just as the physician and nurse must understand the psychology of the sick child, so must the

social worker. Any attempt at relief, material or moral, made tactlessly may jar the child, may aggravate his mental attitude, and put the social worker in the undesirable class as far as the child is concerned. It is therefore, necessary for the social worker to understand the soul of the child and the mental crisis of the sick child.

The psychology of the sick child is a fertile and practical field for study. Investigation along this line will bring to light a great deal in the symptomatology and, subsequently, in the treatment of the various diseases of childhood; for there is much to indicate that each group of diseases carries with it special psychological phenomena. The study of the psychology of the sick child should make a strong appeal to every physician and nurse who is interested in the welfare of the child.

CHILD HYGIENE IN MISSOURI

On request of the acting governor, made in response to a resolution by the State Board of Health, requesting assistance in child hygiene work in the State, the United States Public Health Service is conducting a state-wide study of child hygiene problems in the State of Missouri, in cooperation with the State Board of Health and a number of volunteer organizations. The main object of the investigation is to leave behind it an effective division of child hygiene in the State Department of Health that will carry on the work which the results of the investigation indicate should be done. One of the expected results is that a number of communities throughout the State will organize at their own expense for the conservation of child life.

The work has been thoroughly coordinated with that of local and State official and unofficial health agencies.

SAFETY COUNCIL CONVENTION

The best methods of saving fingers, hands, arms, legs, and lives and of conserving labor and increasing production through accident prevention and industrial medicine will be discussed at the Ninth Annual Safety Congress of the National Safety Council at Milwaukee, September 27 to October 1, the program for which will soon be completed.

During these five days, four thousand men and women,—safety engineers, industrial relations managers, municipal traffic officers, educators and plant executives,—will gather at the Milwaukee Auditorium to throw into the common pot all the information on accident prevention that has developed during the past year.

The 1920 Safety Congress will be the most important in the history of the safety movement. One hundred and eighty speakers, each an expert in some particular line of safety work, are on the program. Accident prevention will be discussed not as a humanitarian proposition alone, but with reference to the most important industrial problems of the day,—under-production and labor unrest. Safety is no longer a haphazard proposition; it has been developed through the expenditure of millions of dollars by the industries of America and through years of research and experimentation, into a science with fundamentals as definite as those of chemistry, biology, or physics.

A special session of the Congress has been arranged where beginners in the field of organized accident prevention will be instructed in these fundamentals. This "A B C" session will be addressed by experts in the organization and operation of industrial safety departments. The Congress program includes a debate on the bonus system in safety work, between J. Claude Smith, Safety Director of the Inland Steel Company, and Philip Stremmel, Superintendent of the Hot Mills, National Enameling and Stamping Company.

PHYSICAL FITNESS OF CHILDREN

The preliminary report of the permanent Committee on Standards of Physical Fitness for Children Entering Employment, appointed by the Children's Bureau of the United States Department of Labor, is announced.

The report consists of two parts—General Recommendations and Minimum Standards of Physical Fitness for Children Entering and Working in Industry. The General recommendations advocate a minimum age of sixteen years for entrance into industry, on the ground that the period of pubescence, not completed in the majority of cases until the sixteenth year, is a time of special strain for the child. No child, according to the recommendations, should be allowed to go to work until he has had a complete physical examination, and has been declared physically fit for the particular occupation which he is about to take up. A re-examination for children when changing occupations, and periodical examinations for all working children, are deemed necessary. The need of special study by local administrative and medical officers of occupations in which children are likely to be employed is pointed out, and further scientific study of the effect of different kinds of work on the physique of boys and girls in their 'teens is declared to be essential. The fields which in the opinion of the Committee are in need of special research are listed.

The necessity for further study, states the Committee, is urgent. However, on the basis of scientific studies already made and the experience acquired in administering child labor laws prescribing physical requirements now in force in a few States, it is possible to formulate certain tentative standards. These, it is expected, will aid materially in safeguarding children from the evil results of premature and unsuitable work.

The report will be sent in mimeographed form for criticism, before being printed, to experts in industrial hygiene, State labor departments, local certificate issuing officers, and interested persons throughout the country.

The Committee consists of the following persons:

Dr. George P. Barth, Director of Hygiene, City Health Department, Milwaukee, Wis., chairman; Dr. Emma M. Appel, Employment Certificate Department, Chicago Board of Education; Dr. S. Josephine Baker, chief, Bureau of Child Hygiene, Department of Health, New York City; Dr. Taliaferro Clark, representing the United States Public Health Service; Dr. C. Ward Crampton, dean, Normal School of Physical Education, Battle Creek, Mich.; Dr. D. L. Edsall, dean, Harvard Medical School; Dr. George W. Goler, health officer, Rochester, N. Y.; Dr. Harry Linenthal, director of Industrial Clinic, Massachusetts General Hospital, Boston, Mass.; Dr. H. H. Mitchell, representing the National Child Labor Committee; Dr. Anna E. Rude, director of Hygiene Division, United States Children's Bureau; Dr. Thomas D. Wood, chairman on Health Problems and Education, Columbia University, New York City; Miss E. Nathalie Matthews, director, Industrial Division, United States Children's Bureau, secretary.

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

LEWIS J. POLLOCK, M.D., *Chicago*
Neurology, Psychiatry and Psychology

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

JOSEPH C. BOCK, C.E., Ph.D., *Milwaukee*
Physiological Chemistry

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

STUDIES IN PENTOSURIA

THE sugar commonly occurring in human urine is glucose. It is found in small amounts in the normal urine, its presence in larger percentage indicating an abnormal or pathological condition. The occurrence of levulose, a sugar closely related to glucose, is rare. Both glucose and levulose are chemically classed as hexoses, sugars containing six carbons in their molecules.

In isolated cases a sugar has been found which gives a reduction with the reagents commonly used for the detection of glucose in urine. This sugar, however, differs in many respects from glucose. It has five carbons in the molecule and is called a pentose. Several pentoses are known, the ones occurring most commonly in urine being aldopentoses, *i. e.*, pentoses with an aldehyde group in the molecule. They are very rarely found in nature as pentoses proper; they are, however, the building stones of high molecular polysaccharides—the pentosans. Pentoses occur in the animal organisms, forming a component part of nucleic acid. If gum arabic or if a nucleoprotein is broken down by hydrolysis, pentoses are found among the cleavage products.

The pentoses are strongly reducing and behave in this respect like glucose. There is, however, a slight difference between the reducing action of a glucose and a pentose-containing urine. The pentoses occurring in urine are in all probability in some combination with urea (Neuberg[1]), which fact may account for the slower and more spasmodic progress of the reaction.

Similar to glucose, pentosazones are formed on heating pentoses with phenylhydrazin. Pentosazones show long, slender needles under the microscope and their melting points differ quite widely from that of glucocazone. The pentoses ferment only slightly or not at all with yeast. While the properties of the osazone and the fermentation test will serve to indicate the present of a pentose, we must also make use of the fact that pentoses give very typical color reactions.

If a pentose solution is heated with Bial's[2] reagent (Orcinol-HCl-$FeCl_3$) the mixture becomes green or a flocculent precipitate of the same color may form immediately or upon cooling.

A pentose solution heated on a water bath with an equal volume of hydrochloric acid and a little phloroglucinol turns red. This reaction (Tollens[3]) is given by a galactose and glycuronic acid besides pentoses. The color produced by the latter two compounds gives a typical absorption band, between the D and E line, on spectroscopic examination. This serves to distinguish between galactose on one side and pentoses and glycuronic acid on the other. The melting points of the osazones differentiate between the latter two compounds.

Any one of the above tests used alone will not serve to prove conclusively the presence of a pentose, the only safe procedure being in the use of all, or at least the majority, of the above tests. It should be mentioned here that many filter papers contain substances which give color reactions very similar to those produced by the pentoses (Umber[4]). This fact must be borne in mind whenever filter papers are used in pentose work.

Salkowski and Jastrowitz[5] found in the urine of a morphinist a substance which, while strongly reducing, was optically inactive and would not ferment. As glucose

1. Neuberg, C.: Ergebn. d. Physiol., 1904, iii, No. 1, p. 409.

2. Bial, M.: Deutsch. med. Wchnschr., 1902, xxviii, 252; Berl. klin. Wchnschr., 1903, No. 18; and Sachs: Biochem. Ztschr., 1906, i, 383, and ii, 245.

3. Tollens and Rorive, F.: Ztschr. c. Ver. d. Deutsch. Zuckerind, 1905, lix, p. 642.

4. Umber: Ztschr. f. klin. Med., 1901, xlviii.

5. Salkowski, E., and Jastrowitz: Ztschr. f. med. Wiss., 1892, Nos. 19 and 35, pp. 337 and 593.

is optically active and fermentable, the observers investigated and found a pentose. While a number of the cases reported in the literature deal with the urines of habitual users of drugs—such as morphin, cocain, and alcohol—we find pentosuria occurring in neurotics and, also, in otherwise perfectly normal individuals. In some cases an excretion of glucose with pentose is reported.

The amount of pentose excreted is not large when compared with the sugar elimination in diabetes. It never amounts to more than about thirty-five grams per day. A concentration of more than 1 per cent is extremely rare. We shall not enter into a discussion of various forms of pentoses. The reader is referred to the work of Neuberg,[6] who was first to study the chemical nature of a urinary pentose and found it to be an arabinose. The publications of Luzzato,[7] Klercker,[8] Zerner,[9] and Levene[10] describe other forms of urinary pentoses besides discussing various interesting aspects as to their occurrence and possible formation in the body.

We have evidence of two types of pentosuria: alimentary and chronic. The alimentary type may result from the ingestion of certain fruits and vegetables which are rich in pentosans. In chronic pentosuria there is apparently no relation between the quantity and the amount of the sugar eliminated. The most commonly occurring form of urinary pentoses is an optically inactive arabinose. We must bear in mind that most all the building stones of living nature are optically active substances. This urinary arabinose is optically inactive, the excretion is apparently totally independent of the nature and carbohydrate content of the diet. There is no relation between this arabinose and the pentoses of the nuclear material of the body. From these facts there seems to be no other conclusion but that the organism of the pentosuria has the power to form this particular pentose. The work of Klercker[8] brings out a point of interest. This observer find that there is a parallelism between the hourly pentose and nitrogen elimination. As this points to a breaking down of a protein-carbohydrate complex, we are led to think of glucosamin, a compound occurring in varying amount in many proteins, because of the observation of I. Bang, who finds that glucosamin can be changed, *in vitro*, by a oxydative deamination into arabinose. However, as mentioned before, there is no conclusive evidence as to the formation of pentose in the body.

The possibility of pentosuria occurring with diabetes mellitus is indicated by some of Klercker's[8] observations, who found pentoses besides glucose in diabetic urine. Diabetes mellitus has also been known to occur in families of pentosuries. These observations are made on a few cases only and, while extremely interesting, will need much further substantiation before being conclusive. In view of the rarity of pentosuria and some of the difficulties in the quantitative identification of pentoses in the presence of glucose, the solution of this part of the problem represents undoubtedly the greatest difficulties.

J. C. B.

6. Neuberg, C.: Ber. d. Deutsch. chem. Gesellsch., 1900, xxxiii, 2243, and 1902, xxxv, 1467.
7. Luzzato, R.: Arch f. exper. Path. u. Pharmakol., 1908, supplement No. 366; and Hofmeister's Beiträge, 1904, lxxxvii, 6.
8. K. O. af Klercker: Deutsch Arch. f. klin. Med., 1912, cviii, 277.
9. Zerner, E., and Waltuch: Biochem. Ztschr., 1913, lvi, 506; and 1913-14, lviii, 410.
10. Levene, P. A., and La Forge: Jour. Biol. Chem., 1914, xviii, 319; and Levene, P. A., and Jacobs: Ber. d. Deutsch. chem. Gesellsch., 1909, xlii, 1198, 2102, 2469, and 2474.

See further: Abderhalden E.: Lehrbuch d. physiol. Chem., 1920, 4th Ed., Vol. i, Urban & Schwarzenberg, Vienna; Hawk, P. B.: Practical Physiological Chemistry 6th Ed., P. B. Blakiston's Son & Co., Philadelphia, 1918; Neuberg, C.: Der Harn, 1911, Vol. i, J. Springer, Berlin; and Abderhalden, E.: Handbuch d. Biochem. Arbeitsmethoden, 1910, ii, Urban & Schwarzenberg, Vienna.

PREVENTION OF SIMPLE GOITER

ANOTHER of the series of thyroid studies by Marine* and his associates in Cleveland has recently appeared. This article contains a record of an examination of the results of the prophylactic use of sodium iodid in the public schools of Akron. There are many interesting data collected, from which Marine and Kimball believe that simple goiter in man can be simply and cheaply prevented. They use sodium iodid, giving it by mouth, approximately 2 gm. over a period of two weeks, repeated twice yearly. In the mildly goiterous districts under study this dosage has prevented enlargement of the thyroid in more than 99 per cent of the children. Of 2,190 pupils taking the doses, only five have shown enlargement of the thyroid during thirty months of the study; while of 2,305 pupils not taking the prophylactic, 495 have shown enlargement. Of 1,182 pupils with thyroid enlargement at the first examination and who took the prophylactic, 773 thyroids have decreased in size; while of 1,048 pupils with thyroids who did not take prophylactic, only 145 thyroids have decreased in size. The difference in these figures is so large as to make the conclusions almost inevitable.

Marine and Kimball point particularly to the fact that in the practical application of the preventive treatment, the three periods when simple goiter occur most commonly are: (1) fetal; (2) in adolescence; and (3) during pregnancy. The prevention of goiter in mother and fetus should be a matter of responsibility of the individual physician, while the prevention of goiter in adolescent school children is really a public health measure.

THE ANNALS OF MEDICINE

THE *Annals of Medicine*† is published in the interest of American medicine under the direction of the Councilors of the American Congress on Internal Medicine and the American College of Physicians." The first number, dated April, 1920, is a good appearing magazine in which the major number of pages are devoted to a roster of the College and to abstracts of current literature. The literature abstracts are broad in scope but in many instances delayed in publication.

PHAGOCYTOSIS AND LEUKOCYTOSIS CAUSED BY LEUKOCYTIC EXTRACTS

TUNNICLUFF[1] reports that the subcutaneous injection of leukocytic extract in rabbits produces an appreciable increase in the number of leukocytes in the blood, the condition lasting from one to four days, and possessing considerably more phagocytic power than normal leukocytes. Intravenous injection of leukocytic extract produces a more rapid rise in the number of leukocytes, but is of shorter duration than that produced by subcutaneous injection. The extracts used were prepared according to the method of Hiss and Zinsser,[2]—and of Archibald and Moore.[3] Further observations were made on extracts made from horse's blood, according to the method of Hiss and Zinsser. This investigation is of importance at the present time because of the large amount of work which is being done in connection with general or nonspecific protective or immunity reactions against infec-

*Marine, David, and Kimball, O. P.: Prevention of Simple Goiter in Man, Arch. Int. Med., 1920, xxv, 661.
†W. F. Prior Company, Inc., New York, Publishers.
1. Tunnicliff, Ruth: The Action of Leukocytic Extracts on the Phagocytic Activity of Leukocytes, Jour. Infect. Dis., 1920, xxvi, No. 5, pp. 447-450.
2. Zinsser: Infection and Resistance, 1918.
3. Archibald and Moore: Arch. Int. Med., 1914, xiv, 120.

tions. As leukocytosis, including phagocytosis, is one of the chief mechanisms of importance in the non-specific reactions to infections these new facts brought out by Tunnicliff should be investigated further and tested out by clinicians.

Leukocytic extract seems to be the most favorable substance yet found for producing leukocytosis. It should be recalled that the leukocytic extract as first devised by Hiss and Zinsser was thought by them to be an aid to the general but non-specific protective reaction against infection, but they considered its chief function to be to supply complement which might be lacking in a patient overwhelmed by infection, and believed that by this means they were able to obtain beneficial results in a number of cases. Notwithstanding their excellent investigation, leukocytic extract did not come into general use, and this study would suggest that their favorable results were due to the leukocytic response noted by Tunnicliff rather than to the supplying of complement. W. T.

TRANSFUSION IN BLOOD STREAM INFECTIONS

THE question of the value of transfusion in cases of bacterial infection of the blood stream is very important, and is one that cannot be answered simply since bacterial infections of the blood stream are not all the same type, and each of the several types of this condition should be treated differently. Bacterial infection of the blood stream should be called bacteriemia and is not properly designated by the obsolete terms septicemia or sepsis. Our knowledge of this condition has been obtained mostly through blood cultures, which is not a formidable laboratory procedure, and, fortunately, most laboratories are now prepared to make this examination.

What stands out as the most important discovery by means of modern blood culture studies is the error of the old belief that bacteria commonly multiply in the blood stream once they have gained entrance there. Laboratory studies have demonstrated that only in the unusual case does this occur, and that in most cases there is a bacterial focus in immediate continuity with one or a series of blood vessels feeding the bacteria into the blood stream, or else the focus is entirely within the blood stream, such as an infected thrombus in a vein or an infection of the heart valves, that is, a bacterial endocarditis. There are some cases which, because of our ignorance, are still classified under the heading idiopathic bacteriemia. In such cases we cannot discover the focus of entry or the focus of supply of the bacteria in the blood; fortunately, however, they are uncommon. It is only in these cases that bacteria apparently multiply in the blood stream. The remainder of the cases of bacteriemia fall into two groups: the temporary bacteriemia, and sustained or chronic bacteriemia. Occasionally it is possible to obtain a positive blood culture in a temporary bacteriemia and to demonstrate the transitory nature of the blood infection by subsequent negative blood cultures. This is uncommon, however, and we must look to other evidences that this condition exists even though unable at any time actually to find the bacteria in the blood. Cases of acute osteomyelitis complicated later by purulent arthritis in one or a number of distant joints in which the same organism is recovered from all foci demonstrate that the bacteria could only be so disseminated by temporary invasion of the blood stream.

There are two other important types of temporary bacteriemia. It has long been known that at its inception typhoid fever is always accompanied by a bacteriemia and that this bacteriemia always or practically always disappears in the first or the second week of the disease. More recently, however, it has been shown that a large percentage of cases of epidemic cerebrospinal meningitis have meningococci in the blood at the very beginning of the disease and that it is usual for the meningococci to disappear from the blood stream when one process becomes localized to the meninges. The exact portal of entry of typhoid bacilli and of Meningococci is not known, nor do we know if there is a primary focus of infection which for a time feeds these organisms into the blood stream. For the time being it must be considered that these organisms multiply in the blood for a while. Their early disappearance from the circulation is evidence of the difficulty bacteria have in maintaining themselves in the blood unless they are continually fed into the circulation.

Bacterial endocarditis, except in one unusual group of cases, is always accompanied by a positive blood culture, more commonly the Staphylococcus, Streptococcus hemolyticus, Streptococcus viridans, Pneumococcus, Gonococcus, or Bacillus influenzae; yet, in order for the endocarditis to occur, the bacteria must have reached the heart valves from the blood stream. It may be that only a small number of bacteria find their way into the blood and these lodge in the heart valves, or it may be that in a more severe though temporary bacteriemia only a few bacteria finding their way to the heart valves, the others being destroyed in the blood or in the spleen or other organs.

The unusual type of bacterial endocarditis in the presence of negative blood cultures is the group of cases of subacute bacterial endocarditis described by Libman[1] as bacteria free. He has brought forward evidence, obtained at autopsy, to show that some of these cases show characteristic lesions, undoubtedly caused by bacterial endocarditis. The blood cultures were negative during life and the endocardial lesions either contain no bacteria or else the bacteria are in the middle of the vegetation and covered over by fibrin which is free of bacteria.

The most important types of so-called idiopathic bacteriemia are caused by Staphylococcus aureus, Pneumococcus, and Streptococcus. These cases start as a severe, acute, infectious disease. Without a blood culture the diagnosis is not made until the appearance of multiple localized acute inflammatory lesions or petechial hemorrhages in skin or mucous membranes. Usually the portal of entry of these infections is not discovered. In cases of pneumococcemia, however, there is usually a history of a preceding mild or severe pulmonary disease. Blood cultures usually disclose great numbers of bacteria in the circulation. These cases practically always go on to a fatal termination. This group of bacteriemias, more than any other group, give the impression that bacteria actually proliferate in the blood stream. In many instances bacterial endocarditis develops, with or without the heart murmurs, and this condition is sufficient continuously to seed the blood with bacteria. As endocarditis does not always occur in the other types of cases, the evidence is admittedly in favor of actual growth of bacteria in the blood.

Bacteriemia caused by an infected thrombus in many ways constitutes the most interesting group, the one which has probably taught us most about blood stream infections, and the group which in many instances permits operative interference and often cure. The two most important types of these conditions are infected thrombosis of the sigmoid sinus, secondary to acute mastoiditis; and

1. Libman, E.: A Study of the Endocardial Lesions of Subacute Bacterial Endocarditis, Am. Jour. Med. Sc., 1912, cxliv, 313.

pelvic infected thrombophlebitis, secondary to puerperal or postabortive infection. A positive blood culture in these conditions indicates operative interference. Sometimes simply tying the internal jugular vein or the ovarian or uterine veins beyond the region of the thrombus will block bacteria from further invasion of the blood stream. At other times the sigmoid sinus will have to be opened and packed or the uterine or ovarian veins excised. If the infected thrombus is shut off from the circulation, it is remarkable how quickly the blood stream will become sterile, occurring in some cases in from one-half to one hour, a fact which affords the most complete evidence that usually the growth of bacteria is inhibited by the blood and that the blood stream tends to free itself of bacteria if the focus of infection is eliminated.

Also, positive blood cultures are obtained in some cases of puerperal infection in which macroscopic thrombi cannot be found. The exact mechanism by which bacteria find their way from the infected uterus into the blood stream is not yet known. There is one type of infected thrombophlebitis which is unaccompanied by bacteriemia. This occurs in the portal circulation, as pylephlebitis secondary to appendicitis. Here, undoubtedly, the liver blocks the bacteria against entrance in the general circulation.

Renal and vesical infections form an interesting group which can only be touched on. Severe infections in these structures are often accompanied by a high and variable temperature with frequent chill. Areas of infection occasionally develop at distant points, demonstrating that the bacteria are at times diffused through the blood stream. Great numbers of blood culture studies have been made of these conditions, but positive blood cultures are infrequently obtained, and these are usually transient bacteriemias. A recent article by Magoun[2] from the Mayo Foundation is of interest in this relation. He injected a culture of Bacillus prodigiosus into the renal pelvis of a dog under the normal pressure of the urine in the pelvis, and a number of times recovered the same organism either from the blood or from other organs. This indicates that under the conditions of this experiment bacteria from the renal pelvis can find their way into the general circulation and would explain cases of transient or sustained bacteriemia in some renal infections. Sometimes, however, in the presence of infected thrombi in the periprostatic veins, bacteria are found continuously in the blood.

Before discussing the use of blood transfusion in blood stream infection a few words should be said about other therapeutic procedures. Vaccines of any sort are contraindicated since the blood already contains great numbers of living bacteria and does not react favorably to them. Specific anti-sera for the infecting organism would be the ideal measure. Unfortunately, it has been impossible to produce potent antisera for the entire group of Gram-positive Cocci and also from many of the Gram-negative Cocci. An exception to this is the antimeningococcus serum, which has been shown to be very efficient when used intravenously. When injected subcutaneously and intravenously, foreign proteins have been shown to produce a non-specific immunity reaction. This measure has probably not been used to as large an extent as it should have been. However, a great deal cannot be expected from this. The substance which appears most logical to use is leukocytic extract, which produces a leukocytosis and also an increase in the phagocytic activity of the leukocytes.

2. Magoun, J. A. H., Jr.: Pelvis of Kidney as Possible Source for Infection of Blood Stream, Jour. Am. Med. Assn., 1920, lxxiv, 73-75.

There have been many reports of the use of transfusions of blood in cases of bacteriemia, but very few of the cases are reported as having survived or as having been cured. Disastrous results have followed the use of large transfusions. Here apparently the transfused blood has quickly killed off large numbers of bacteria, and set free bacterial toxins which overwhelmed the patient and caused death in a few hours.

The article of Polak[3] on repeated small blood transfusions in blood stream infections is, therefore, of interest. In a small number of cases of bacteriemia following puerperal infection he considers that he has obtained good results by multiple small blood transfusions. He reports four cases of pelvic thrombophlebitis with one death; and seven cases of bacteriemia not associated with throbophlebitis with one fatality. The two fatal cases were very far advanced when this treatment was started. Citrated blood was used and from 250 to 300 cc. were slowly given at each transfusion. The transfusions were repeated as indicated. Often, but not invariably, transfusion was followed by a high rise in temperature and a chill. Litigation or excision of the pelvic veins should be done when thrombophlebitis is present. If this procedure is contraindicated, or if it does not relieve the bacteriemia, Polak advocates multiple small transfusions on the basis of the favorable results noted in his small series of cases. It should be remembered that E. C. Rosenow came to the same conclusion in his studies of cases of subacute bacterial endocarditis years ago, publishing his results in the *Journal of Infections Diseases*. The procedure advised by Polak is certainly a logical one and it is hoped that it will be put into practice in other clinics, so that one may soon be able the better to judge the results from a larger series of cases.

3. Polak, John Osborne: A Preliminary Note on the Value of Repeated Small Blood Transfusions in Blood Stream Infections, Transactions of the American Gynecological Society, 1919.

INDUSTRIAL HYGIENE AND PUBLIC HEALTH

The interrelation between industrial medicine and the public health finds a new emphasis in subjects to be discussed in joint sessions between industrial physicians and officers of public health at the Forty-ninth Annual Meeting of the American Public Health Association, San Francisco, Calif., September 13-17, 1920. We present herewith the program of the Industrial Hygiene Section, under the chairmanship of F. D. Patterson, M.D., Harrisburg, Pa.; A. J. Lanza, M.D., Cleveland, O., vice-chairman; and C.-E. A. Winslow, M.D., New Haven, Conn., secretary.

FIRST SESSION

Tuesday, September 14, 9:00 A. M.

Honorary Chairman, E. J. Hopkins.
Secretary, C. E. Ford, M.D.
Joint Meeting with Sociological Section.
Labor Camp Sanitation: A Basis for Education in Citizenship. R. Justin Miller, Executive Officer, Commission of Immigration and Housing of California.
Health Supervision in Industry. Charles W. Crankshaw, M.D., Prudential Insurance Company, Newark, N. J.
Industrial Health Education—A Means and an End. Jules Schevitz, Oklahoma Tuberculosis Association, Oklahoma City.
Health Education in Industry. C. E. Ford, M.D., Medical Director, General Chemical Co., New York City.

SECOND SESSION

Thursday, September 16, 2:00 P. M.

Honorary Chairman, R. T. Legge, M.D.
Address of the Chairman.
Election of Nominating Committee.
A Program of Industrial Hygiene as It Touches the Employe's Home. F. A. Anderson, Social Service Director, Twin City Lines, Minneapolis, Minn.
A Plea for Physical Examination of All Applicants before Employment. J. T. Bird, M.D., Pontiac, Mich.
Hookworm Infection in California Gold Mines. Ralph W. Nauss, M.D., Dr. P.H., Colorado Fuel & Iron Company, Pueblo, Colo.
Hygienic Control of Lead Workers with Special Reference to the Blood Picture. (Stereopticon illustration.) Geo. W. Miller, M.D., LL.E., and C. Van Schaak, M.S., East Chicago, Ind.

REVIEW OF RECENT LITERATURE ON TUBERCULOSIS

By JOHN B. HAWES, 2nd, Boston, Mass.

THE amount of literature published during the past year or more on the general subject of tuberculosis is enormous. It is manifestly impossible to review or even to refer to each article on this subject; I have, therefore, confined myself to what appear to me to be the most important ones. These articles naturally fall into certain groups, chief among which are: (1) Tuberculosis and the war; (2) tuberculosis and influenza; (3) the Framingham Experiment; (4) the tuberculosis campaign, and (5) miscellaneous articles on tuberculosis.

Tuberculosis and the War

Before we entered the war alarming reports reached this country concerning the enormous amount of tuberculosis among French troops and the distressing frequency of exacerbations of this disease due to war conditions. Bushnell,[1] in a careful article, was among the first to point out the exaggeration in these statements. France apparently lost the services of nearly eighty thousand men on account of a wrong diagnosis of tuberculosis. Miller[2] confirms Bushnell's statements and gives a clear picture of what the tuberculosis problem in Europe really amounts to. Hatfield[3] reviews this subject from the American viewpoint with special reference to the soldier rejected on account of this disease. Badnel and Mendes,[4] and Maraglianc[5] describe this subject as it appears among Italian troops. Trudeau,[6] Matson,[7] Otis,[8] and Burns[9] describe the methods employed in various American camps and cantonments for the examination of troops for tuberculosis and the diagnosis of this disease. Twitchell[10] reports favorably in regard to this problem. He finds that the quiescent lesion does not tend to become active under the conditions of army life in America. Fitz and Cunningham,[11] on the other hand, report that tuberculosis was nearly three times as common among American as among British troops and that recurrences and flareups were very common among American troops shortly after going abroad. Elliott,[12] discussing errors in diagnosis, again refers to the mistakes made by the French early in the war, stating that out of eighty-six thousand troops discharged from the French army for tuberculosis later examination showed only one-fifth to be really tuberculous. Stewart[13] of the Ninette Sanatorium, Manitoba, likewise comments on this and reports that of the soldiers sent to his institution on account of tuberculosis, 28 per cent were classed as non-tuberculous. Parfitt of Gravenhurst goes so far as to say that 40 per cent of returned soldiers coming under his observation were non-tuberculous. In contrast to this, in its editorial comment the *Journal of the American Medical Association*[14] states that the War Risk Insurance Bureau has a record of more than three thousand cases of tuberculosis out of a total of 7,103 disease cases under its care. Pritchard[15] urges x-ray examination along with clinical means of detecting tuberculosis in soldiers. Bissell[16] likewise considers the x-ray of first importance. Matson[17] and Manton and Maingot,[18] in same articles, point out the limitation of the x-ray in the diagnosis of pulmonary tuberculosis. Hawes[19] goes into the details of the army tuberculosis problem as it appears in Massachusetts, and is of the opinion that the war problem is no different from the peace problem as far as tuberculosis is concerned and that the solution depends on early diagnosis, thoroughness, and utilization of all available resources, and particularly common sense. Baldwin[20] summarizes the entire subject in an excellent article. From my own experiences in this subject as consultant in lung diseases to the Public Health Service in Massachusetts and from the large numbers of men seen either at the Massachusetts General Hospital as well as privately, I should agree strongly with Elliott, Stewart, and Parfitt quoted above, that errors in diagnosis are extremely common; that any abnormal pulmonary condition is apt to be called tuberculosis; that the effects of gassing, trench and barrack bronchitis, and influenza are all often mistaken for and designated as tuberculosis.

Tuberculosis and Influenza

When the influenza epidemic first swept over this country in the fall of 1918, physicians everywhere, and particularly those whose practice dealt largely with pulmonary tuberculosis and other diseases of the lungs, began raising a very pertinent and important question as to the effects of influenza on active and inactive tuberculosis. There were two opinions in regard to this: one a small group who believed that tuberculous patients possessed a degree of immunity against this new respiratory tract disease; and another, a large group, who looked for, and who found direful results among their lung cases who had influenza. Fishberg[21] was the champion of those holding the first viewpoint. He states as follows: "I have not met a single case of phthisis during the past year which could be ascribed to have followed influenza. . . . It is not to be considered as a reactivater of dormant tuberculous lesions. . . . Tuberculous processes in the lungs have not been observed to assume an acute or progressive course after an attack of influenza. . . . The pulmonary sequelæ remaining after influenza are almost without exception non-tuberculous in character and do not require the treatment accorded to phthisical patients."

These statements, quite characteristic of Fishberg, radical in the extreme, would be approved by practically no one at present. There were not a few, including myself, who were surprised at the fact that the incidence of influenza at state institutions for consumptives was vastly less than that in other institutions for non-tuberculous patients, and who were still more pleasantly surprised at the excellent manner in which patients with pulmonary tuberculosis passed through severe attacks of influenza (Hawes[22]). We felt that a wave of needless alarm was spreading over the country and that countless errors

1. Bushnell: Jour. Am. Med. Assn., 1918, lxx, No. 24, p. 1821.
2. Miller: Rev. of Tuberculosis, 1919, iii, No. 6.
3. Hatfield: Boston Med. & Surg. Jour., 1918, clxxviii, 863.
4. Badnel and Mendes: Polyclinic, London, 1918, xxv, No. 21, p. 492.
5. Maragliano: Riforma med., 1918, xxxiv, No. 17, p. 332.
6. Trudeau: Jour. Am. Med. Assn., 1918, lxxi, No. 10, p. 818.
7. Matson: New York Med. Jour., 1918, cviii, No. 5, p. 199, and No. 6, p. 294.
8. Otis: Med. Rec., New York, 1918, xciv, 47.
9. Burns: Jour. Am. Med. Assn., 1918, lxxi, No. 5, p. 373.
10. Twitchell: Southwest Med., 1919, ii, No. 7, p. 6.
11. Fitz and Cunningham: Am. Jour. Med Sc., 1919, clviii, 328.
12. Elliott: Rev. of Tuberculosis, 1919, xi, No. 11.
13. Stewart: Am. Rev. Tubere., 1918, xi, No. 6.
14. Editorial: Jour. Am. Med. Assn., 1919, lxxiii, 696.
15. Pritchard: Mississippi Valley Med. Jour., 1918, xxv, No. 10, p. 295.
16. Bissell: Am. Jour. Roentgenology, 1918, ix, 468.
17. Matson: Jour. Am. Med. Assn., June 28, 1919.
18. Manton and Maingot: Bull. d.l.Soc. med.d.hôp. 1918, xlii, 914.
19. Hawes: Best. Med. & Surg. Jour. 1919, clxxi, No. 17, p. 499.
20. Baldwin, W. H.: Rev. of Tuberculosis, 1919, iii, No. 6.
21. Fishberg: Rev. of Tuberculosis, 1919, iii, No. 9.
22. Hawes: Clinics of North America, April, 1919.

in diagnosis would be made and injustice done to innumerable patients should it be taken for granted that influenza necessarily reactivated and made worse a previously existing influenza. None of us, however, would for a minute agree with the extreme statements above quoted. Permin[23] states that tuberculosis is aggravated by influenza, that the tuberculous patient must be kept away from this disease, and that there will be an increase of tuberculosis following it. Berghoff[24] reports that 50 per cent of his cases showed a reactivation influenza; Stirelman[25] found that influenza did remarkably little harm to the consumptives under his care; Tewksbury,[26] in his series of sixty-four cases, feels that everyone was lighted up by influenza; Anderson and Peters[27] feel that tuberculous patients have no immunity against influenza and that numerous exacerbations are due to it. Blasco[28] is of the opinion that nearly 50 per cent of cases are made worse following influenza. Horman,[29] in his sanatorium, had only a small number of influenza cases among his patients. This he attributes to the fact that tuberculous persons possess a certain immunity against this disease. Wilson speaks of post-influenzal hemoptysis and urges that, while the patients should be followed closely, one should not be in too much of a hurry to call it tuberculosis. Recently I wrote personal letters to fifteen or twenty of the leading specialists in tuberculosis and diseases of the lungs in this country in regard to this matter. While there was a great diversity of opinion as to *how much* harm an attack of influenza did to a consumptive, there was a unanimity of opinion that it did harm and was in every case a serious complication. This is a sane way in which to regard it.

The Framingham Demonstration

This experiment, or rather, demonstration, now being carried on in Framingham, Mass., is being conducted by the National Tuberculosis Association and financed by the Metropolitan Life Insurance Company. It aims to answer the following questions: (1) Is it possible to discover and to place under adequate medical, nursing, and relief supervision all of the cases of tuberculosis, incipient and advanced, in a normal industrial community? (2) Is it possible to ascertain with some degree of definiteness the responsible social and economic factor in disease causation, including all types of morbidity, not only tuberculosis? (3) What is the most efficient utilization of the existing means available for the discovery and treatment of disease? (4) What percentage of theoretically preventable disease is practically preventable with the use of known but unused or at least uncoordinated instruments? (5) What is the best possible adjustment of social forces, existing or to be created, with the objects of the prevention of unnecessary disease and death?

The answer to these questions, as is evident at a glance, are of far reaching significance. What has been done to solve these problems, with details of methods and means employed, are described in detail by Dr. Armstrong, executive officer, and Dr. Bartlett, medical director, as well as by the Committee of the National Association in charge, in the various articles, reports, and bulletins from this group.[31 32 33]

Our Knowledge of Diagnosis

Very little that is new has been added to our knowledge of diagnosis. The fundamental principles of taking nothing for granted, thoroughness and not jumping at conclusions have been emphasized.

McCrae and Funk,[34] out of 1,200 admissions for advanced tuberculosis, found 6 per cent to be non-tuberculous. Lack of thorough examinations and neglect of sputum tests are the chief causes of mistakes. Slade[35] wisely emphasizes the fact that it is far more unjust to the patient to make an incorrect positive diagnosis than to make an incorrect negative one. His views follow closely the standards for diagnosis and treatment adopted by the National Tuberculosis Association. Philibert[36] calls attention to three valuable tests: (1) Provoked expectoration by means of expectorants; (2) injection of 50 cc. of normal salt solution and watching for a subsequent rise in temperature, two to eight hours later, and (3) temperature after exercise. Ochsner[37] places first in diagnosis the physical examination; second, a careful history. In nearly 50 per cent of cases, x-ray examination gave no help. Nicholson and Goetsch[38] describe their test to differentiate early tuberculosis from hyperthyroidism. The test depends on the constitutional sensitiveness of the patient to adrenalin. If the condition is due to hyperthyroidism he will react to adrenalin, while in tuberculosis there will be no such reaction as shown by rise in blood pressure. This test is an important addition to our knowledge on this subject.

Methods of Treatment

In treatment as well as in diagnosis nothing new has been added. Emphasis has been increasingly laid on prolonged rest; and exercise, when taken, should be standardized and carefully regulated.

Schaefer,[39] Pottenger,[40] Thompson,[41] Kinghorn,[42] and Kahn[43] describe and discuss this subject. Pneumothorax has its ardent adherents. Gammons[44] urges that it be not left to a last resort but that its use be considered in every case. Stolkind[45] advised its use in children as well as in adults. Cicconardi[46] urges its use for hemorrhage; Stirchman[47] warns of its dangers, while Parfitt and Crombe,[48] and Shortle[49] discuss its advantages and disadvantages.

Heliotherapy is coming into greater use as its value becomes known. Mills and Forster[50] describe the use of condensed reflected sunlight in laryngeal tuberculosis with good results. Collin[51] describes its use for bone and joint tuberculosis. Blegvad[52] recommends it for laryngeal tuberculosis, either direct sunlight or Finsen rays being

23. Permin: Ugesk. f. Laeger, 1918, lxxx, No. 44, p. 1739.
24. Berghoff: Am. Rev. Tuberc., 1919, iii, No. 6.
25. Stirelman: New York Med. Jour., July 5, 1919.
26. Tewksbury: Am. Rev. Tuberc., 1919, iii, No. 6.
27. Anderson and Peters: Am. Rev. Tuberc., 1919, iii, No. 6.
28. Blasco: Med. Iberia, 1918, iv, No. 37, p. 54.
29. Horman: Southwest Med., 1918, ii, No. 11, p. 13.
30. Wilson: Lancet, London, January 25, 1919.
31. Armstrong, D. B.: Trans. Thirteenth Annual Meeting of the National Tuberculosis Association; Trans. Fourteenth Annual Meeting of the National Tuberculosis Assn.; Jour. Am. Med. Assn., 1918, lxxi, 1458; Framingham Monograph, No. 4, November, 1918; Framingham Monograph No. 5, March, 1919; Modern Medicine, November, 1919, p. 633; Bull. National Tuberculosis Assn., January, 1919, No. 4; July, 1919, No. 10, and October, 1919, No. 13; Bost. Med. & Surg. Jour. August 28, 1919.
32. Bartlett, P. C.: Interstate Med. Jour., 1919, xxv, No. 7.
33. Report of Committee on Appraisal of the Framingham Community Health and Tuberculosis Demonstration.
34. McCrae and Funk: Jour. Am. Med. Assn., 1919, lxxiii, 161.
35. Slade: Monograph No. 19, New York City Department of Health, December, 1918.
36. Philibert: Progr. Med., May 10, 1919, p. 179.
37. Ochsner: Med. & Surg., 1917, i, No. 9, p. 982.
38. Nicholson and Goetsch: Am. Rev. Tuberc., 1919, iii, No. 2.
39. Schaefer: Colorado Med., July, 1919.
40. Pottenger: New York Med. Jour., 1919, xii, No. 2, p. 61.
41. Thompson: South. Med. Jour, 1919, xii, No. 2, p. 61.
42. Kinghorn: Am. Rev. Tuberc., 1919, iii, No. 4.
43. Kahn: Med. Rec., 1918, xciv, No. 21, p. 899.
44. Gammons: Best. Med. & Surg. Jour., vclxxx, No. 19, 528.
45. Stolkind: Brit. Jour. Child. Dis., 1919, xvi, Nos. 181 and 183.
46. Cicconardi: Riforma Med., 1919, xxxv, No. 8, 130.
47. Stirchman: New York Med. Jour., 1919, clx, No. 5, p. 187.
48. Parfitt and Crombe: Am. Rev. Tuberc., 1919, iii, No. 7.
49. Shortle: Am. Rev. Tuberc., 1919, iii, No. 7.
50. Mills and Forster: Am. Rev. Tuberc., 1919, ii, No. 11.
51. Collin: Ugesk. f. Laeger, 1918, lxxx, No. 47, p. 1841.
52. Blegvad: Ugesk., f. Laeger, 1918, lxxx, No. 48, p. 1910.

used. Sieria[53] calls attention to contra-indications to its use, such as fever, heart disease, nervous disposition, tendency to hemorrhage, and nephritis. Dixon,[54] speaking in regard to sanatorium treatment, calls attention to the fact that it is simply one part of treatment and that it must not be blamed if, because of its effect alone, the death rate and care incidence do not fall. What he says is of the utmost importance.

Rutledge and Crouch[55] present an excellent summary of their results with sanatorium treatment. The use of tuberculin in various forms of non-pulmonary tuberculosis continues to produce good results. As pointed out by Hawes,[56] it is of the utmost importance to remember that tuberculin is only one factor, more or less important, as the case may be. In tuberculous eye conditions, however, tuberculin seems to be of special value; of this I can bear willing testimony from numerous patients of my own, while Török,[57] Gardini,[58] and Paterson[59] confirm this opinion in regard to the treatment of tuberculous cervical adenitis. Hertz[60] urges heliotherapy for this; Dufourmentel[61] still believes surgery can produce the best results while Abbot[62] is an enthusiastic believer in tuberculin, but only casually refers to removal of tonsils. It is a pity that more emphasis is not laid in the literature on this subject upon the fundamental importance of the following:

(1) Removing foci of infection, which in most cases will be found in the tonsils, *whether* or not on macroscopic examination they appear diseased.

(2) Treat the patient who has the lumps in the neck and not the lumps alone.

(3) Use all methods of treatment at your disposal according to the needs of the individual case,—conservative surgery, tuberculin, heliotherapy, x-rays, Finsen rays, violet rays, etc.

The Campaign Against Tuberculosis

Palmer[63,64] emphasizes the fact that our campaign against tuberculosis is intimately mixed with that for public health, and urges that we broaden our campaign. Lyman[65] speaks for more cooperation; Hawes,[66] in discussing the present needs of the campaign, mentions the following as essentials: (1) Knowledge as to how much tuberculosis there is; (2) knowledge as to the existing means for handling it; and (3) cooperation. Hawes[67] describes certain methods that might be discarded and others that might well be used more than they now are. Raw,[68] Porter,[69] and Fine[70] also speak well on this subject.

Brown, Petroff and Pesquera[71] discuss the etiological factor in tuberculosis, such as dust of rooms, eating utensils, contaminated hands, saliva, kissing, tooth brushes, flies, and coughing. They conclude that kissing, or eating utensils improperly cleaned, may be dangerous factors, and that dust, flies, hands, telephone mouthpieces and properly cleaned eating utensils are not dangerous. Their investigations are of interest and importance.

53. Sieria: Med. Ibera, 1918, v. No. 55, p. 183.
54. Dixon: Practitioner, London, 1918, ci, No. 6, 308.
55. Rutledge and Crouch: Am. Rev. Tuberc., 1919, ii, No. 121.
56. Hawes: Internat. Clinics, i, Series 28.
57. Török: Arch. Ophth., 1919, xlviii, No. 3, p. 242.
58. Gardini: Crón. Méd., Lima, 1918, xxxv, No. 664, p. 293.
59. Paterson: Am. Jour. Med. Sc., 1919, clvii, No. 568, p. 198.
60. Hertz: Ugesk. f. Laeger, 1918, lxxx, No. 50, p. 1967.
61. Dufourmentel: Presse méd., December 5, 1918, No. lxviii, p. 621.
62. Abbot: Am. Rev. Tuberc., 1919, iii, No. 3.
63. Palmer: Jour. Am. Med. Assn., 1919, lxxiii, No. 13, p. 985.
64. Palmer: Am. Rev. Tuberc., 1919, iii, No. 5.
65. Lyman: Am. Rev. Tuberc., 1919, iii, No. 5.
66. Hawes: Bost. Med. & Surg. Jour., 1918, clxxix, No. 4, p. 123.
67. Hawes: Nineteenth Annual Rep. Canadian Tuberculosis Assn., October, 1919.
68. Raw: Brit. Med. Jour., January 25, 1919, No. 3, pp. 30-911.
69. Porter: Brit. Jour. of Tuberc., Reprint No. 112.
70. Fine: Jour. Med. Soc. New Jersey, 1919.
71. Brown, Petroff, and Pesquera: Am. Rev. Tuberc., 1919, iii, No. 10.

RELATION OF DIET TO PELLAGRA

A study of the relation of diet to pellagra incidence in seven textile-mill communities of South Carolina in 1916, reported in *Public Health Reports*, March 19, 1920, carries the following summary and conclusions:

(1) To supplement the studies, chiefly experimental, of 1914, and 1915, a study was begun in the spring of 1916, in seven cotton mill villages of South Carolina of the relation of factors of a dietary, economic, and sanitary character to the incidence of pellagra. In the present communication the results of the first year's work with respect to the relation of household diet to pellagra incidence is reported.

(2) The selected communities were typical cotton mill "villages" and were of about the average size; none over eight hundred or less than five hundred inhabitants. Only the families of white mill operatives were included in the study.

(3) Pellagra incidence was determined by a systematic bi-weekly house to house search for cases carried on continuously from April 15, 1916, to the end of that year.

(4) Only patients with a clearly defined bilaterally symmetrical eruption were recorded as having pellagra. It is suggested that clinically, pellagra includes at least two commonly associated but etiologically essentially distinct, though closely related syndromes.

(5) Only active cases, without regard to whether they were first or recurrent attacks, were considered; the date of the appearance of the eruption was assumed to mark the onset of the attack.

(6) Data relating to household diet were secured by obtaining records of sale from the principal stores, for a fifteen-day sample period during the season immediately anterior to or coincident with the sharp seasonal rise in incidence of the disease.

(7) Comparisons of diets of nonpellagrous with those of pellagrous households revealed that the nonpellagrous enjoyed a more restricted supply of the foods of the "animal protein" group (lean meat, milk, including butter, cheese, and eggs).

(8) Increasing supplies of milk or of fresh meat were found associated, one independently of the other, with a decreasing pellagra incidence.

(9) No consistent correlation was found between carrying supplies of either (1) maize meal, (2) wheat flour, or (3) the common dried legumes, and pellagra incidence. The results of the present study offered no support for the Zeist theory of the etiology of pellagra.

(10) The potential energy in the average food supply of pellagrous households, though somewhat less than in that of nonpellagrous households, nevertheless conformed closely to accepted standards so that the fuel supply of the diet would seem in itself not to be an *essential* factor in relation to the incidence of the disease.

(11) The protein supply of the pellagrous households tended to include, on the one hand, a somewhat smaller proportion derived from animal foods and, on the other, a somewhat larger proportion from cereals and the common mature beans and peas, which would suggest that the protein mixture—amino-acid supply—in the diets of the nonpellagrous households is more likely to be physiologically adequate than that in the diets of the pellagrous groups.

(12) The proportion of calories derived from carbohydrate and fat combined is essentially identical in the supply both of pellagrous and of nonpellagrous households. The supply of carbohydrate is, if anything, somewhat smaller in the diets of the pellagrous than in those of the nonpellagrous households, so that the production of

pellagra would seem not to be dependent on the excessive consumption of this nutrient.

(13) The diets of the pellagrous households have a smaller average supply of the recognized vitamines than do those of the nonpellagrous, the disparity in supply being particularly marked with respect to the "fat soluble A" factor.

(14) The mineral make-up of the diets of the nonpellagrous households will tend to be superior to, or at least, is less likely to be deficient either as a whole or in any of its elements than that of the pellagrous households.

(15) The indications afforded by this study suggest that the pellagro-preventive power of a milk or a meat supplement is due to the effect of a correction in the type of diet studied, of a deficiency in supply either (1) of some amino-acid or acids, (2) of the ash or of some of its constituents, (3) of some as yet unknown essential (vitamine?), or (4) of all or of a combination or combinations of some of these. Conversely, they suggest that the pellagra-producing dietary fault is the result of some one or of a combination or combinations of two or more of the following factors: (1) A physiologically defective protein—(animo-acid)—supply; (2) a defective or inadequate mineral supply; (3) a deficiency in an as yet unknown dietary essential (vitamine?). The somewhat lower plane of supply both of potential energy and of protein in the diets of the pellagrous households though apparently not an essential factor, may, nevertheless, be contributory by favoring the occurrence of a deficiency in intake of some one or more of the essential dietary factors, particularly with diets having only a narrow margin of safety.

(16) The indications afforded by this study clearly point to an increase in the availability of milk, particularly by increasing cow ownership, and of fresh meat, by all year round meat markets as important practical measures of prevention and control in communities of the character studied.

Addendum: After our manuscript had gone to press there came to hand a copy of the "Report of a Committee of Inquiry Regarding the Prevalence of Pellagra among Turkish Prisoners of War" in Egypt (published February, 1919). Among the conclusions reached, the following are of most interest in the present connection:

(1) "There is no evidence of the presence of any bacterial infection standing in etiological relation to pellagra.

(2) "There is no evidence of infection by any protozoal, spirochetal, or ultramicroscopic organism standing in etiological relation to pellagra.

(3) "Pellagra is due to a deficiency in protein, as gauged by its biological value."

STUDIES IN THYMUS FUNCTION*

By ADRIEN BLEYER, M.D., Washington University School of Medicine, St. Louis, Mo.

THE experiments described in this paper were undertaken in the belief that it is possible to produce in animals, by means of removal of the thymus gland, a condition closely related to if not actually identical with rickets of human beings. This expectation seems to have been justified by statements appearing in various textbooks, Aschoff's "Pathology," for example, which reports that "Basch, Klose, and Matti have furnished proof that a scientific relationship exists between the function of thymus and the growing skeleton and that the changes consist of the most outspoken rachitic manifestations." Weil's textbook on chemical pathology states that "extirpation of the thymus in young animals is followed by marked defects in the development of the skeleton and changes in the development of sex organs. Thymus extirpation causes a loss of calcium and thymus feeding a calcium retention." He admits, however, that all results of experimental work along these lines do not harmonize, but "it is certain that deficiency in the thymus causes a defect in ossification. Also, there occurs a period of adiposity followed by cachexia with hyperplasia of the lymphatic tissues and of thyroid, pancreas, ovaries, and testes." Additional references such as these may be found in current textbooks. It appears that the work of Klose and Matti, particularly, has been most widely accepted and has been instrumental in forming opinion concerning the functions and significance of the thymus gland, but a diligent search for the details of their methods and accomplishment or any adequate presentation of their work could not be found by the authors of this paper but analysis is made of all that could be found of it as well as of all other contributions on the effects of thymus extirpation which have appeared in the literature.

The work of Restelli in Italy in 1845 was the first attempt to determine the nature of thymus function by removal of the gland. Restelli operated upon ninety-eight animals—sheep, dogs and calves—all dying within seventeen days with sepsis or pneumonia or of other causes seemingly not related to thymus. The next work was that of Friedleben which, the authors state, still remains the greatest single contribution to the subject. This was in Germany in 1858. Goats and dogs were used; some were partially and some completely thymectomized. The following data were secured from Friedleben's work:

(1) Development after partial thymectomy goes on normally in young animals; no lesions were discovered at necropsy. (2) Animals dying after complete thymectomy died of causes unrelated to the removal of the thymus. He concludes that the thymus is not essential to life.

Friedleben carried on his work to removal of the spleen simultaneously with removal of the thymus and concluded that the removal of both was always followed by death. Numerous studies were made concerning the interrelation of these two glands which it is said formed the foundation of most of the work which has followed since.

Effects on Growth Transitory

After Friedleben nothing appeared until the work of Laugerhans and Saveliew in 1893, thirty-five years later. This was performed on rabbits and dogs and all results were negative. The following year Tarulli and Lo Monaco, working with puppies, reported transitory changes in the blood, and great increase in appetite with retardation of growth, of body-weight, and of hair. The hair became coarse, lost its luster, and could be pulled out easily. A few years later the same men made another very extensive study, using puppies and chickens. The retardation of growth in weight reported in the former paper was

*An abstract of the report of Edwards A. Park, M.D., and Roy D. McClure, M.D., on "The Results of Thymus Extirpation in the Dog," published in the American Journal of the Diseases of Children, 1919, xviii, 317. Read before Pediatric Department, Washington University, March 3, 1920.

now found to be transitory, growth after a slowing-up period going on to normal. The changes in the hair as described in their former paper were confirmed. In one animal there occurred a change in color of hair from brown to white, as well as the changes in texture previously described. In one animal curvature of long bones was noted.

The work of Abelous and Billard on frogs reports that removal of the thymus was invariably followed by death within two weeks, but that life could be prolonged by thymus transplants from other animals. Vincent soon after contradicted these findings, however, and found that frogs can live quite well without thymus glands. The frog as an experimental animal in thymus work now became much used and partisans appeared on both sides of the question raised which finally appears to have been settled by Hammar who found that the removal of one or even of both lobes of the thymus produced no effect whatever upon the life expectancy of the frog. Hammar's conclusions are accepted as final and correct by Park and McClure. Then follows a long list of experiments: Adler found no change in growth or development after removal of the thymus but noted enlargement of testes and thyroid. Cozzolino in his work failed to find any variation in the texture of the hair, change in appetite or alteration in growth; but later reported a bowing of the forelegs and a swelling of the articular ends of the long bones in rabbits three months after extirpation of the thymus, death ensuing two weeks thereafter. Examination of the enlarged bones showed increased proliferation of cartilage, which extended in an irregular manner into the shaft of the bone. It was abnormally vascular, and Cozzolino suggested a relationship between thymus function and the growth of bone, and also the possibility that the changes noted might have been rachitic.

Sinnhuber now followed with calcium determinations on urine and feces of thymectomized puppies with entirely negative findings. He concluded from this that thymus removal or thymus feeding produce no change in the calcium output, and that therefore the thymus is *not* related to rickets.

Contrary findings, however, were soon reported from another source. Bracci made estimations of the calcium output and also of the calcium content of the organs in thymus containing, thymus free and thymus injected animals, and reported a very definite relationship between thymus function and calcium metabolism. Thymectomized rabbits showed great excess of calcium excretion and those injected with thymus showed a marked lowering of calcium excretion. Lastly, the calcium content of bone, brain, and blood was found much reduced in thymectomized and much increased in injected animals.

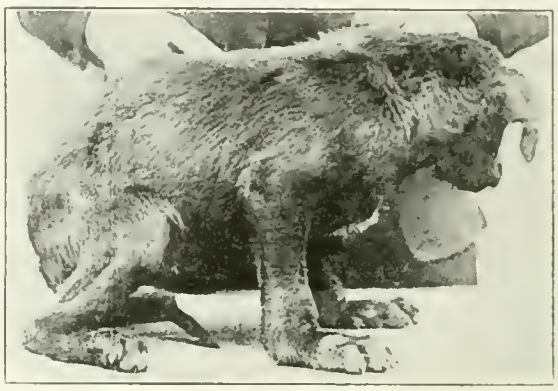


Fig. 1.—This picture shows the characteristic attitude of the thymectomized animal after the symptoms have become fully developed. It is reproduced from an article by Basch (Jahrb. f. Kinderh., 1906, lxiv, 285). The dog is obviously sick, and the posture almost certainly indicates confinement in a cage. There is nothing in the appearance of the animal to suggest rickets or any specific condition.

The thread of this contention was now taken up by Fischl, who sought to determine the activity of calcium metabolism as shown by the repair of bone. The legs of numerous animals deprived of their thymus glands were broken, and the healing process observed. No variation from that usual in normal animals could be detected. Fischl concludes that thymus function, in so far as related to the growth of bone, is nil. His experiments performed on goats and dogs were now extended to rabbits, which likewise failed to show any variation from normal; then chickens were used, with similar findings; so, as a result of his negative experiments in four different species of animals, Fischl concluded that removal of the thymus is without significance to the organism. He denied that any function whatever of the thymus had ever been shown to exist in post-fetal life and that after birth it was physiologically inert.

Fig. 2.—Side and front views of a dog, five months old, fed on a mixture of corn meal and confined in a cage from the sixth week of life. At necropsy the thymus weighed 2.8 gm. Note that the animal stands in the characteristic flatfooted posture emphasized by Basch as a typical development in animals deprived of the thymus. Note also he exhibits all the deformities described by Matti and Klose as characteristic consequences of the loss of the thymus gland. Yet the dog was never subjected to an operation. His thymus was never touched. Three other puppies of the same litter, similarly fed and confined, developed the same changes. Two of them, though remaining healthy, lost the power to stand. One control animal not confined remained normal.

This work was done in 1907 and was shortly attacked by Basch as having been unsatisfactorily carried out. High commendation is expressed for Basch's work by Park and McClure, particularly for that part of it dealing with the relationship between thymus and nervous system, published in 1908, which the authors qualify as monumental in research on internal secretion, for in it Basch established the existence of a definite and important connection between thymus function, the nervous system, and the formation of bone, and by this work

elevated the thymus to a position among the most important and best understood organs of internal secretion of the body.

A few items selected from Basch's work may be noted. First, as to bone: in a very high proportion of animals there occurred exactly similar pathologic changes in the bones, demonstrated clinically, by x-ray and necropsy. Two or three weeks after operation the bones of the extremities of thymectomized animals had become softer and more flexible, the tibias of the hind legs being first affected. These animals soon acquired a clumsy, straddling gait and became less active. Later the forelegs exhibited outward bowing and enlargement of the lower radial epiphyses and these animals began to walk with the fore feet, from the ankle downward, flat against the ground (Figs. 1-2). Growth was retarded both in height and weight and there was diminished intelligence, those most affected appearing to be quite stupid. Fracture experiments corresponded, the large, spindle-shape callus in control animals being replaced with a narrow ring formation in thymectomized animals; in two, bony union failed to occur. These differences were most marked when the thymectomy was performed in young puppies, still suckling, and the fractures made from three to four weeks after the date of operation. Earlier than this they were less marked and, when performed several months after thymectomy, were scarcely distinguishable at all. It is especially significant that after complete removal of thymus, though the occurrence of definite and uniform results were observed, these signs gradually lessened and disappeared, and were in all instances transitory. After five or six months the change induced in the skeleton by thymectomy no longer existed, and it is upon this fact, largely, that Basch placed his contention that the disturbances produced in the bones by thymectomy were not rachitic. And so it was in the matter of growth in height and weight, where the thymectomized animals in the course of time overtook or equaled their mates, the retardation of growth being temporary, as were the disturbances in the bone. The pathology of bony structure was much as described by Cozzolino, compact bone was less abundant, the marrow more spongy, the trabeculae finer and containing a great deal of cartilaginous substance; the epiphyseal line broader and more wavy, and the nuclei of ossification scattered and less advanced.

Calcium Loss After Thymectomy

Metabolism experiments were made, having to do, however, only with urine, feces being discarded. There was a definite finding, namely, that the amount of calcium in the urine of the thymectomized dogs was more than twice that of the controls, diets in each group being identical. Later experiments confirmed this, and in these the feces were included, the total calcium loss being in these greater by almost three times than in the controls.

As for the relation of thymus to nervous system, thymectomized puppies were found to develop an hyperexcitability of peripheral nerves to galvanic current stimulation, this was then found to extend to the motor areas of the brain.

From his work Basch concludes that the thymus is concerned with the growth of bone, development and calcification throughout the early period of life, and that as for nervous system, it stands related to tetany.

Soli's work now followed in agreement with that of Basch and confirmed the work of Adler showing interference with the growth of the organs of sex. As for calcium metabolism, an experiment carried out by Soli is of unusual interest. He sought to determine the activity of calcium metabolism after thymectomy by examining the eggs, and particularly the shells of the eggs, of thymectomized hens. Very commonly eggs laid after thymectomy were deprived completely of any shell and in other instances the shells, when present, were much thinner than normal.

Subsequent references add confirmations here and there, but no other new ideas were brought out. The work of Klose and Vogt is lengthily described, because it is this work which brought forward the conception of thymic idocy, thymic coma and thymic death; it will be passed over, however, because discredited by the work of Park and McClure.

Matti's work appeared in 1911, 1912, and 1913 and developed the essential fact that the removal of the thymus produces true rickets. "No finer attempt has been made to solve the problem of thymus function," is the phrase in which Park and McClure qualify Matti's work, although their own conclusions are completely at variance from his.

The Foregoing Work Checked Up

In the work of Park and McClure thymectomy was performed upon seventy-five puppies, all under seven weeks of age, and, although the work appears to center on the question as to whether rickets is or is not produced by thymectomy, interesting observations were also made on numerous other matters. (1) As to the influence of thymectomy upon the life of the animal the authors find that in the dog, at least, the function of the thymus gland is absolutely not essential to life. (2) As to the influence of thymectomy upon nutrition and growth, it is stated that no such effects as those described by other experimenters could be found in a great majority of the animals, and that a very small minority only exhibited a slowing up or retardation of growth, and that in these it was always transitory. (3) As for the influence of thymectomy on the growth of hair and teeth and on the form of the body, gait, intelligence, and appetite, no change of importance occurred. Not one of the animals exhibited any bowing of the forelegs, enlargement of joints, valgus conditions of the hind legs, atrophy of the hind quarters, or beading of ribs, as had been noted by numerous observers, nor were any deformities of the thorax noted at necropsy.

In the few instances in which any difference was noted in gait or posture it was attributed to the nature of the operation; but, to the contrary, "a dog came under our notice," they state, "which did show the identical postural abnormalities of the feet mentioned by Basch, by Klose, and by Matti as a characteristic development in thymectomized dogs and, in addition, presented marked thickening of the bones about the joints and marked bowing of the fore legs. This dog showed every deformity exhibited by the living thymectomized animals of Basch, Klose, and Matti; yet this animal was never subjected to any operation. His thymus gland was never touched. He was merely confined in a cage four by four feet for three months, beginning with the sixth week of life, and fed a mixture of meat and cornmeal." No change was noted of any disturbance of intelligence in thymectomized dogs, and the same was found concerning appetite.

Studies were made on the effect of thymectomy upon the spleen, pancreas, and organs of internal secretion. No alterations in spleen, pancreas, hypopysis, thyroid, parathyroids, or adrenals were observed which could be attributed to deprivation of thymus function. Except in two instances, the testes of thymectomized dogs showed no variations from testes of control animals. No change

in ovaries was noted. All other organs of the body were examined and found to be normal.

There remain observations on the skeleton which, although lengthily described, may be briefly summarized. As was stated, this particularly was the objective of the work in thynectomized animals.

(1) X-ray examination during life failed to show any peculiarities in the time of appearance or in the rate of growth of centers of ossification.

(2) Sections through epiphyses and epiphyso-diaphyseal junction of long bones failed to show definite disturbances or any greater inequalities of ossification than are within the normal.

(3) The length, size, thickness, and form of long bones showed no variation from bones of control animals.

From these observations the authors draw the conclusion that their "experiments yielded perfectly definite information in regard to the question of pathologic changes in the bones of thymoprivous origin and permit us to state with absolute certainty that removal of the thymus gland in the dog does *not* cause rickets or any other allied condition."

HOSPITAL OF THE MICHIGAN MUTUAL LIABILITY COMPANY

FROM all parts of the state of Michigan come the patients at the Michigan Mutual Hospital, Detroit. The hospital is operated for the treatment of men or women injured by industrial accidents in the course of their employment. The clientele of the institution are the corporations that hold policies covering industrial accidents underwritten by the Michigan Mutual Liability Company.

When it is remembered that more than two million industrial accidents are reported each year in the United States, the magnitude of the task of providing medical and surgical care for these disabled workers becomes apparent. Proper treatment of the victims of industrial accidents involves hospital problems which depend for their solution upon the institutions of the type represented by the Michigan Mutual Hospital.

Significant of the tendency toward expansion in medical service since the war is the project now receiving the consideration of the trustees and the directors of the Detroit institution. The Surgical Director of the Michigan Mutual Hospital is Lieut.-Col. Harry N. Torrey, M.C., United States Army, who spent two years with the American Expeditionary Forces in France at Base Hospital No. 17, at Dijon, and at other hospitals along the western front. With the return of Colonel Torrey, the plans now under consideration to provide for future growth will be carried into effect, and full advantage will be taken of the experience gained in the army medical service by the surgical director.

The class of cases handled by the institution, coming largely as they do from factories and industrial establishments, require treatment such as may be best described as "constructive surgery," the whole aim of the work being to return its patients to full industrial efficiency in the least possible time. The majority of cases come from Detroit and the immediate vicinity. Frequently, however, injured workmen are sent to the hospital from the most distant parts of the state.

The hospital was established by the Detroit Employers' Association for the care of their injured employees, and was acquired by the Michigan Mutual Liability Company in 1916. It is now operated exclusively for the treatment of injured employees of its policy-holding members as a part of the insurance protection afforded by the company.

The hospital was formerly one of the finest residences of an exclusive yet centrally located section of the city and because of the spacious grounds, is especially well-suited to hospital purposes.

In adapting it to hospital use a studied effort was made to retain so far as possible the home-like atmosphere and to this is ascribed a due share of the success attained in effecting prompt recoveries of serious cases.

The hospital staff comprises some of Michigan's foremost industrial surgeons, and is headed by Dr. H. N. Torrey, who has a wide reputation in this line. Associated with Dr. Torrey are Dr. G. B. M. Seager, hospital superintendent, Dr. J. H. Penix, chief surgeon, and Dr. W. A. Briegel, superintendent of the Out-Patient Department. All x-ray work is done by Dr. P. M. Hickey. The departments of ophthalmology and dental surgery are in charge of Drs. H. L. Begle and C. C. Eckfield, respectively. A masseur is in daily attendance at the hospital for the treatment of patients requiring his services.

The hospital itself contains the most modern equipment for handling the kind of work upon which it specializes. The accommodations comprise a main operating room, an x-ray room, which is also available for operations, an Out-Patient Department, for the treatment of injuries of a minor nature and for redressings, a large general kitchen and two special diet kitchens for the preparation of the special foods required for patients. The various wards and private rooms contain thirty-five beds.

A complete laundry, for the proper care of linen, clothing, etc., is operated as a part of the hospital equipment.

The hospital maintains its own ambulance and for the care of this and other cars used in the service, a garage is maintained on the premises, with a chauffeur-mechanic who is qualified to keep this part of the equipment up to the high standard demanded in every department.

To insure the best results through the Out-Patient Department a social service nurse is employed to follow up and keep under observation the cases of patients whose injuries are such a minor nature as to require only more or less frequent calls at the hospital for attention and redressing.

The hospital also serves as headquarters for the city surgical staff, members of which are located in different parts of the city, where their services are quickly available for any emergency demanding immediate attention, which may arise at the plants of members of the insurance company.

Administration quarters include a spacious reception room, a handsomely appointed dining room for the employes of the hospital, and offices for those in charge of the institution.

The personnel of the hospital includes a staff of fourteen surgeons, a head nurse, three day-nurses and one night-nurse, an orderly, two stenographers, a matron, first and second cooks and helper, a dining room girl, chauffeur, three laundry workers, and two scrub-women.

During the year ending April 30, 1919, there were handled by the hospital 497 bed cases, ambulatory cases in the Out-Patient Department totalled 7,500. Of redressings 4,708 were made in the hospital and 25,864 in the Out-Patient Department. The total treatments made by staff surgeons outside of the hospital were 61,401, making a grand total of 98,428 treatments by the surgical staff.

In 1918 there were used about one and one-half tons of gauze bandages, one ton of absorbent cotton, 12,000 yards of adhesive tape, 30,000 yards of surgeon's gauze, 18,000 ounces of iodine, 3,200 ounces of ether, 1,200 ounces of gallons of nitrous oxid, 7,500 gallons of oxygen, 3,200 Dakin's solution, besides other sundries.

HEALTH IN INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

THE NATIONAL SAFETY COUNCIL

EACH annual session of the National Safety Council brings evidence of the increasing emphasis upon health in industry as distinguished from protection against accidents. Nearly every section of the great conference of industrial leaders and experts furnished some discussions of health problems, and the Health Section itself has come to be anticipated by industrial physicians and surgeons as one of the best forums for the exchange of information, experience, and points of view. This year's program for the Conference at Milwaukee, September 27 to October 1, offers much to the growing body of industrial health specialists. Indeed, so important is the occasion that a mid-year conference of the American Association of Industrial Physicians and Surgeons has been called to meet in connection with the Health Section of the Safety Council at Milwaukee.

The recognition by the Council of the important rôle of health in the safety movement is one of the most powerful influences in forcing the industry to see the fact that sick men cause accidents and prolong the disabilities. Furthermore, it helps to spread the idea that the best kind of medical service pays in industry because it prevents infections and undue loss of time to the worker and industry.

Not alone because it prevents accidents and prolonged disabilities, does health in industry appeal to the thoughtful leaders in industry. Medicine in industry implies more than first aid to the injured. Accident prevention bears a close relation to preventive medicine and safe mechanical appliances lead to measures looking toward the general health. Safety measures protect against any disability whether incurred in the factory or outside. When a man is disabled six weeks from typhoid the loss is as serious as when he is disabled by an accident. He loses his wages; industry and society lose his production; and someone must pay the cost of his medical care. His death from typhoid leaves his dependents in even worse condition than if he were killed outright. It is fortunate that the National Safety Council recognizes the social benefits from the prevention of disease as well as accident, and thus places the movement for safety on a broad humanitarian plane instead of a selfish plane of calculation of the benefits in dollars and cents measured by the liability and compensation losses.

INDUSTRIAL PHYSICIANS MEET WITH SAFETY COUNCIL

THE officers and the Board of Directors have arranged for a midyear meeting of the American Association of Industrial Physicians and Surgeons to be held in conjunction with the Health Service Section of the National Safety Council Tuesday and Wednesday, September 28 and 29, Milwaukee, Wis. Members are urged to make their reservations at once.

The preliminary program is announced herewith. Relatively few subjects have been assigned, so that opportunity may be given for wide discussion from the floor.

The following statement is taken from an appeal sent to all members of the Association over the signature of Otto P. Geier, M.D., president, and Francis D. Patterson, M.D., secretary-treasurer, of the organization.

This meeting, occurring in the heart of an industrial section, assures the attendance of a large number of industrial physicians and surgeons. The Health Service Section of the National Safety Council has always attracted a big audience since it was first founded by the industrial physicians in 1915. The proposed joint meeting of the Health Service Section with that of our Association will add greatly to the number in attendance and afford a fine opportunity for exchange of experience.

The work of the industrial physician in the past five years has so distinctly broadened out into the field of personal relations, employment management, and safety work, that the forward looking physician will be only too glad to avail himself of attendance upon the fine program offered by the National Safety Council in connection with these various subjects throughout the week. By taking part in the discussion of these other programs the industrial physician can bring the representatives of industry to a fuller appreciation of the value of the physician in the personal relations program.

The printing of the Proceedings of the New Orleans meeting is under way, and they will be mailed to the membership at an early date.

The meeting at Milwaukee will afford the membership an opportunity of making suggestions to the officers as to the plans for the ensuing year and assist them in the preparations for the annual meeting at Boston. The Board of Directors will meet at Milwaukee to act on the suggestions made at the meeting and to complete the plans for the immediate future.

The program follows:

SEPTEMBER 28, 1920.

TUESDAY A. M.

W. Irving Clark, Jr., M.D., Chairman.

Doctor and Patient vs. Employer and Employee.
By C. C. Burlingame, M.D., Manchester, Conn.

Preventive Medicine in Industry.
By Harry E. Mock, M.D., Chicago, Ill.

The Dental Dispensary: Its Importance, Its Help, Its Cost.
By H. M. Brewer, D.D.S., Dayton, O.

SEPTEMBER 29, 1920.

WEDNESDAY A. M.

Otto P. Geier, M.D., Chairman.

The Future of Industrial Medicine and Surgery.
Address by Chairman.

Fractures Incident to Occupation.
By John J. Moorehead, M.D., New York City.

Industrial Surgery.
By William O'Neill Sherman, Pittsburgh, Pa.

WEDNESDAY P. M.

W. Irving Clark, Jr., Chairman.

Physical Examination of Employees.
By A. W. Colcord, M.D., Clairton, Pa.

Paper by W. A. Sawyer, M.D., Rochester, N. Y. (subject not reported).

EFFICIENCY OF MINE LABOR AS RELATED TO INDUSTRIAL MEDICINE

By ARTHUR L. MURRAY, Surgeon, United States Bureau of Mines Safety Car, Salt Lake City, Utah

DURING recent months much criticism as to the efficiency of mine labor has been heard from various sections of the country. No doubt much of this criticism has been well founded. The present lack of efficiency and of stability is due primarily to a spirit of restlessness and partial irresponsibility engendered during the transition from war conditions to peace time conditions. This spirit of unrest, not only among the laboring classes, but in every branch of the human family, following a period of intense nervous tension in a nation, appears to be a natural sequence of war and beyond the control of man. This condition will gradually disappear, and the majority of our people will again assume their natural order of living; but labor will for a considerable period be sensitive to these influences, whether they be exerted for good or for evil. Employers of labor should take cognizance of this fact and bend every effort towards the development of measures that promote efficiency and permanence of the working force. Labor efficiency depends upon many and varied factors. Some of these factors, as applied to mine labor, are briefly enumerated in the following paragraph:

Selection and Placement of Manpower

In the selection of men the two main considerations are physical ability and adaptability. The laws of mechanics should be applied in the selection of men, as in the selection of machinery. If a machine is required for a certain class of work, the type of machine known to be mechanically fit for such work is selected. Likewise, men should be selected with regard to their physical and temperamental fitness for the kind of work expected of them.

Every man employed by a mining company should be given a physical examination before employment. Such an examination will furnish an index by which the men may be placed in positions where they can do the work they are physically capable of. The employer and the employee are thereby mutually protected. Men with known or unknown physical defects that are not debilitating may, through being placed at work which exerts a particular strain on the parts affected, become temporarily or permanently debilitated. In many instances the employer has to pay compensation which would have been avoided had these men been placed at work not conducive to aggravating the original defects.

Records kept of pre-employment physical examinations by firms employing large numbers of men show a very low rejection rate. The physical defects found are often subject to correction, and the friendly advice given by examining physicians, when taken advantage of, frequently leads to the restoration of normal physical condition. The reports of one large corporation employing thousands of men show that on original examination 7 per cent of those applying for work were found physically unfit, but by simple operations or other corrective measures 75 per cent of those rejected on original examination were sufficiently restored to normal to warrant their employment; thus the total net rejections amounted to less than 2 per cent of all those applying for work.

Recently the author had occasion to pass upon the physical examinations of metal-mine hoisting engineers applying for certificates in the state of Utah. Among the 81 applicants the examinations showed 20 cases with defective vision, 3 cases with hernia, 4 cases with minor deformities of the limbs, and 2 cases with constitutional diseases; but only two of the applicants were rejected. All the other cases, through simple treatment or properly fitted glasses or trusses, were physically reclaimed so as to safely follow their calling.

Many men are wrongly placed at work for which they are not fitted through previous training or employment. By carefully carding at the time of employment the lines of work with which a man is familiar and has had experience, a permanent record of the working force is always at hand. The original placing of men employed can be governed by their past experience as shown by their card records. Also, if at any time men for a special line of work are required, the card records may afford an opportunity to locate the men needed among the mine force.

So far as possible, men should be selected for their stability. Frequent labor turnover is costly in many ways. The cost of breaking new men in, the disrupting of mine crews, the increased office work of opening and closing accounts, to say nothing of the effect on morale, can be measured in dollars and cents.

In the mining industry, probably to a greater extent than in any other industry, men tend to drift from one camp to another. All things being equal, a married man is more likely to become permanent and to be a greater asset to a mining camp than a single man. As a rule, a miner with a family takes his employment more seriously than a single man, has at heart the welfare of the camp, and usually will direct his influence to develop its moral tone.

Affects Industrial Relations

The successful and continuous operation of a mine is just as much dependent upon proper supervision of its manual labor as upon its mechanical equipment and technical supervision. Supervision of mine labor, if the desire is to build up an intelligent and efficient force, must be firm but sympathetic and understanding. The old type of boss, characterized by his ability to drive men rather than direct and lead them, is passing. Today we look more to intelligent leadership, technical training, and sympathetic understanding as attributes of successful supervisors of labor. Generally, workers will exert greater effort and accept direction from a man they respect and admire more readily than from a man whose chief claim to a superior position is his driving power.

Frequently dissatisfaction among miners is not towards the employing company itself, but the man directly over them is of a type that antagonizes their interests. The best results can be obtained only when mutual trust and confidence is created on the part of both employer and employee.

Supervisors with a broad viewpoint, through recognizing just complaints and through fair interpretation of those complaints to the company officials, can do much to maintain harmonious relations. Mutual regard for the well being of the employees and the economic limitations of

the employer, and the ability to equalize both factors, is one of the greatest assets to be desired in labor supervisors.

Committees on safety and committees on employees' welfare, selected among the workers, to meet and discuss problems affecting conditions in and about the mine and camp with company officials can be made the means of effecting a common viewpoint on matters of interest to all concerned. The company should be open mindedly willing to consider all matters affecting the well being of its laboring force, and use all reasonable means of promoting and enhancing such conditions.

Efficiency Through Industrial Medicine

Industrial medicine, one of the most potent means of promoting labor efficiency, has application to every branch of mining operations. In the selection and planning of camp sites, the sanitary engineer is indispensable in determining adequate water supplies; methods of drainage, including proper sewage disposal; suitable housing arrangements as regards light, ventilation, and overcrowding; and provisions for the disposal of refuse and waste. In the selection of labor, industrial medicine, as already shown, plays an important part. By careful study of working conditions, and the corrections of conditions and causes leading to accidents and illness, much needless time loss may be eliminated. Through sanitation applied to mining camps or towns and the safeguarding of the conditions under which employees live, the general health of the community is promoted. Through medical welfare work, especially by popular instruction in personal and public hygiene, much sickness, with its resultant suffering and time loss, may be prevented. The average loss of time due to illness among the workers of the United States is nine days per year, or 900 days per 100 employees—about two and one-half years. The greater part of this illness, with its time loss, is due to preventable causes.

Popular education in hygiene and preventable disease can be applied to mining communities through agencies which are not only instructive but highly interesting as well. Some of these agencies are as follows:

Visiting nurses who help care for the sick and at the same time give instruction in home sanitation, care of the ill, prevention of the spread of communicable diseases, and in personal hygiene.

Short, interesting talks on health subjects should be given at regular intervals, illustrated, when possible, by lantern slides, motion pictures, or charts. Circulars and folders are useful and, if the community supports a publication, a department devoted to the health of the worker could be established. The schools should provide courses in personal and public hygiene. Oftentimes, through interest stimulated in children at school, the adults at home are reached.

First aid classes should be organized not only among workers but also among the women and older children of the camp. Clean-up campaigns, anti-fly campaigns, etc., are useful in promoting health education and a spirit of civic betterment.

Outdoor exercise and employment during leisure hours should be encouraged through gardens and athletic grounds.

The medical and surgical care for workers should be as good as can be provided. The time loss from disabling sickness and injury can be materially lessened by prompt and efficient medical attention. Slight ailments or injuries, if promptly attended to, may be corrected with little or no loss of time; but, if neglected, they may become serious and their correction or cure entail a long period of absence from work. Men below par physically cannot be expected to measure up to par in effort. By periodic examinations a working force can be kept as near physical par as possible.

Where practical, a hospital, fully equipped, should be maintained at the mine. If no hospital is provided, there should be at least an emergency room where patients can be given emergency surgical care and made as comfortable as possible until they can with safety be removed to a hospital.

The surroundings under which a man is forced to work react on his mental attitude, and his labor output is in proportion to whether they are healthful or harmful, safe or unsafe. As men become more enlightened, their desire for better working conditions is a natural result. Hence, employers who desire intelligent and efficient men should make their working conditions as safe and wholesome as possible.

Safety, sanitation, lighting, and ventilation underground should receive proper attention and supervision. Safety devices and properly directed safety supervision more than pay their cost in decreased loss of labor through lessened accidents and saving in compensation. At large mines a safety engineer is as much a necessity as a mining engineer.

Men at work breathe more air than otherwise, and the wholesomeness of the air they breathe largely determines the amount of labor they can perform. Therefore, both as regards health and labor economy, proper ventilation of working places benefits not only the employees, but also the employer.

Drinking fountains and sanitary latrines underground are recognized necessities of large mining operations and add much to the comfort and health of the men. The general care of underground workings in respect to keeping them clean and free from débris has a marked effect on the men. The sight of débris in passageways, drifts, and tunnels encourages shiftlessness and carelessness.

Well constructed change houses where miners can bathe and change from their soiled and sweaty mine clothing to dry clean clothes before going home promotes both health and self-respect.

Above ground the general sanitary conditions about the mine should be good. Débris should not be permitted to accumulate in and about the mine entrance or about the buildings. Drainage should be such that water will not collect and stagnate. Adequate toilet facilities should be provided.

Living Conditions and Labor

As a man lives so is he liable to work. The living conditions at any mine largely determines the type of labor that seeks employment and remains at that mine. A camp where housing conditions are poor, where sanitary conditions are below standard, where the general morale has been permitted to become lax, does not attract the best element. Men who are willing to put up with such conditions are usually of the "floater" type, shiftless, lacking in responsibility, and easily influenced to find fault. At such camps agitators find fertile soil for creating dissatisfaction.

The conservation of health and the prevention of illness is one of the biggest problems faced by industry. The energy a man may expend depends directly upon his physical condition, which in turn depends upon the way and conditions under which he lives.

Housing conditions for workers, to promote their best efforts and production, should be as wholesome as they can be made. There should be no overcrowding. Living rooms should be light, well ventilated, and provided with adequate heating facilities. Houses for married workers should be attractive and of a type to encourage home making and the development of self-esteem.

Boarding houses should be kept clean and caretakers should be held to strict account for their care and cleanliness. Rigid supervision of the dining rooms and kitchens of boarding houses should be maintained. Food is one of the most important means of spreading disease, and lack of care in its preparation and serving may cause serious outbreaks of illness, which lead to a decided curtailment of production.

The food supplied at a mining camp should be good, plain, and wholesome. It should be stored and handled in just as cleanly a manner as possible.

Every mining camp should be provided with an adequate supply of pure water and every precaution should be taken to safeguard its purity.

Wherever possible, a mining camp should have a sewage system with an effluent that permits of no nuisance. If a sewage system is not practical, usually a sewage disposal system with septic tank or tanks can be installed. The general drainage should be such as to prevent the accumulation of stagnate water in or about the camp. Refuse of all kinds should be collected at regular intervals and burned. Refuse heaps are incubators for germs of disease and their distributors, filth and disease-carrying flies. Piles of cans and filth dotted over its confines detract from the appearance of a mining camp. Such conditions not only reflect upon the inhabitants of the camp, but also upon the management of the mine.

Proper supervision of the sanitary conditions of a mining camp is no small problem, but the benefit is shared by every member of the community.

Determinants of Community Influences

The social and moral tone of a mining community is the sum total of the social status and moral consciousness of its inhabitants. They are elevated or lowered in direct proportion to the predominating type of the population. Lack of regard for community influences have been costly to many employers.

Approximately one-third of a man's time is employed at his labor. Another third is usually given over to sleep. The remaining third a man seeks diversion through recreation. This spare time, through environment, may be influenced for good or for evil. Every mining camp, if it desires to progress, must recognize that wholesome and health-building facilities for recreation are a necessity.

A few of the community influences operating as an asset may well be enumerated. There should be provided: Good schools which provide for the growing generation an opportunity for education; proper medical care, with a health program and a visiting nurse; a health program which has for its purpose the prevention of sickness and the building of good sound bodies is a matter that operates for the good of all concerned; a community house where opportunity is afforded for community social gatherings is a decided advantage, and a community social program which promotes well being and provides clean, wholesome amusement for all the population. A community housing proposition which makes possible the building of homes is a most valuable means of developing a conscientious laboring force who through property ownership have a greater interest in the civic and moral welfare of the camp. Community gardens offer a means of healthful exercise in the open air and aid in reducing the cost of living. A cooperative store, which is really cooperative in function, is a great help in making a camp prosperous and its inhabitants contented. Such a store, where the profits are shared by all who patronize it in proportion to the total of their purchases, goes a long way towards reducing living costs.

Conclusions Drawn From Study

The class of labor drawn to a mining camp, whether thrifty, industrious, and stable, or shiftless, inefficient, and unstable, is largely influenced by the nature of the camp.

The wholesome or unwholesome influences of a mining camp bear a decided relation to its production.

The working forces of a mine are entitled to good living conditions, adequate water supply, sewers, light, medical care, community welfare endeavor, and facilities for healthful and wholesome recreation as a part of cost of production.

It should be the desire and the aim of every mining company to have and retain employees satisfied with the conditions under which they labor, and make their community highly desirable as a place in which to live and rear a family. The company, then, by giving can expect and should receive fair and equitable treatment from each employee.

PLANT HOSPITAL OF THE GOULDS MANUFACTURING COMPANY

By H. G. MEACHAM, Works Engineer, Seneca Falls, N. Y.

THE phase of so-called industrial welfare work commonly known as "Industrial Medicine" has much to commend it. That this fact is being realized more and more by firms throughout the entire country is evidenced

Before the Plant Hospital and Medical Department of the Goulds Manufacturing Company were established, first aid cabinets and relatively inexperienced service had proved to be inadequate.

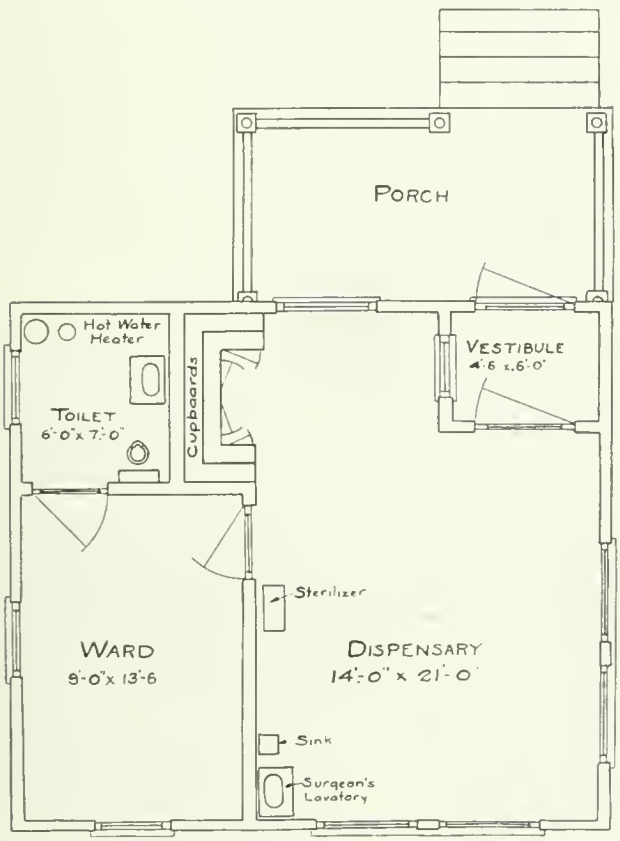
by the complete medical departments, in many cases including hospitals, to be seen in almost every plant of any size that one may visit.

A high order of industrial production demands the speedy restoration of an injured or a sick workman. This is the true function of the plant hospital: to give such medical attention to injuries or illnesses as to insure the quick recovery and early return to work of the employee so affected. Heretofore, with the crude first aid appli-

Dispensary service for minor injuries constituted the bulk of the work since the hospital was built in 1919. The building is equipped for the handling of major as well as minor work.

ances, applied with unsterile hands, many costly infections resulted, and there is no doubt that such infections caused nearly as much lost time and consequent loss of money to the worker as more serious but uninfected injuries.

These methods have been supplanted by as complete a plant hospital as one would wish to see in the plant of the Goulds Manufacturing Company, at Seneca Falls, N. Y. Seneca Falls is a manufacturing town of about eight



The hospital of the Goulds Manufacturing Company provides dispensary service for minor cases of illness as well as any severe injuries that may occur. The floor plan shows the convenient arrangement.

thousand inhabitants, having a public hospital in the village. The Goulds Manufacturing Company are manufacturers of power driven pumps and hydraulic machinery, employing about twelve hundred men. The accident rate of this plant has been very low in consideration of the fact that so many different hazards are present. Among these hazards are those of wood working, foundry work, machine shop, and structural, boiler, and electrical processes.

In the summer of 1919 the management decided to build a plant hospital and place in it the necessary equipment for the care of minor cases of illness as well as for the prompt handling of any severe injuries that might occur. The accompanying photographs will show the interior views of this building. The line drawing gives a view of the arrangement of the different rooms.

Prior to the inauguration of this medical department, the making of all accident reports devolved upon the foremen in the plant, but when the hospital was started, this work was left entirely to the head nurse, in order to relieve the foremen of a duty for which they were perhaps unfitted and which was liable to take up considerable of their time. The only form which a foreman is required to fill out at the present time is the initial order to the Medical Department to give first aid treatmen either for injury or for illness to the man whose name appears on the form. Should it be required, as is frequently the case, for the employee to return to the

The equipment and arrangement of the surgical room is shown in this picture. It is adequate to meet every demand.

hospital for a re-dressing of the injury, the nurse makes out a second form and gives it to the employee for his foreman. A third form shows the daily record of the Medical Department. In a column headed "Accident Number" is placed the number of the accident, provided it is serious enough to require the treatment of a physician, or if such an accident results in any lost time. A fourth form shows the monthly sick and accident statistical report properly tabulated and summarized.

This system of handling a plant medical department is quite simple and has worked out in a perfectly satisfactory manner. It is hard to tell just what the expense of inaugurating such a department would be, as at the present time prices fluctuate so greatly. There is no resident physician at the Gould Manufacturing plant, as the company doctor can reach the plant hospital from his office in five minutes.

NEW YORK PURCHASES RADIUM

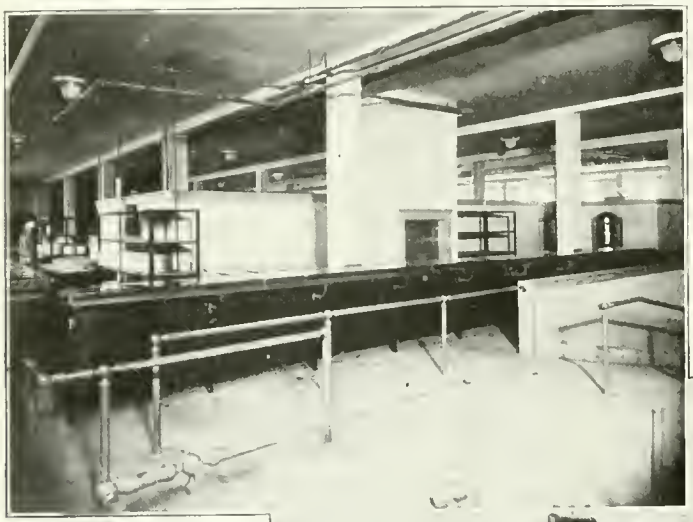
A bill introduced in New York by Senator L. W. H. Gibbs of Buffalo has been passed and signed by Governor Smith appropriating $250,000 for the purchase of radium to be held as a state asset for medical use.

THE WESTINGHOUSE LUNCH CLUB

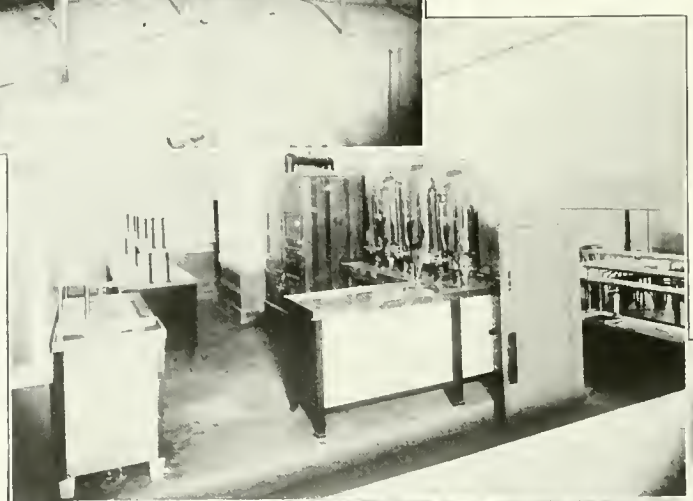
By W. W. RODGERS, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa.

IN recent years manufacturing plants all over the country have opened cafeterias for the benefit of their employes, who thereby are enabled to get wholesome nourishing food at very low prices and are also assured of sanitary service.

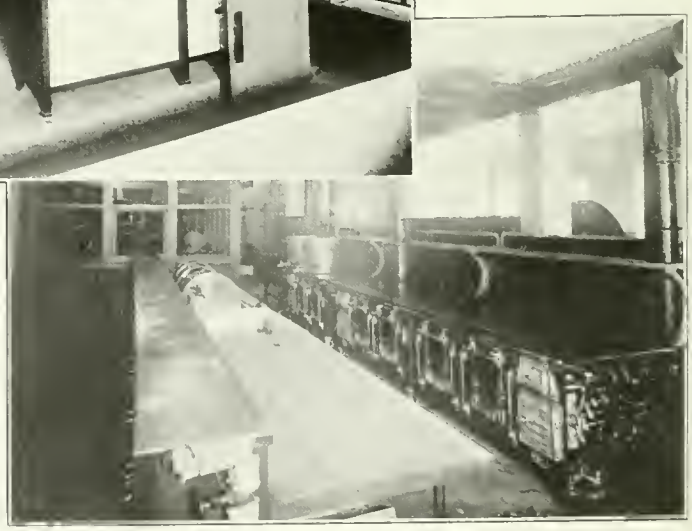
Research work had indicated that many workers are subnormal from eating unwholesome food, in many cases even the home lunches lacking the proper nutriment, and as a result they are under-nourished and are not able to handle their jobs efficiently. Complaints of this nature have been narrowed down by the establishment of company lunch rooms. Also the cafeteria plan has eliminated to a large extent the small insanitary restaurants that spring up about factories, serving lunches at low cost but in many instances preparing food unfit for use.



There are eight service counters in the cafeterias on the first and second floors. There are coffee urns, milk freezers, a refrigerating plant, motor driven washing machines and storage rooms artificially cooled.



The steam tables from which the patrons of the Westinghouse Lunch Club are served. Note the arrangement of ramp and aisles.



There are gas and combination coal and gas ranges, and electrically heated pie baker with a capacity of sixty-five pies every fifteen minutes.

Recently the Westinghouse Electric and Manufacturing Co. at East Pittsburgh, Pa., opened the largest industrial eating house in the world. The building, three stories high, has a seating capacity of more than 3,200 people and at the opening ceremonies more than 10,000 visitors were accommodated. At present the first floor is given over to women employees who carry their own lunches; a cafeteria for men and women is on the second floor; and the third is taken up with a large dining hall and an auditorium. All modern building features have been incorporated in the construction of the building, including the use of ramps instead of stairways leading to the second and third floors.

Both kitchen and dining rooms have been thoroughly equipped with sanitary, labor saving devices that enable a comparatively small force of help to serve efficiently hundreds of diners.

Included in the kitchen equipment are large gas ranges as well as combined gas and coal ranges, a steam meat roaster, steam service table, two steam heated soup kettles with a capacity of sixty gallons each, as well as a huge coffee urn for diningroom service. A potato peeler which peels forty pounds of potatoes in less than two minutes, a bread cutter and a potato masher are all electrically operated. There is also an electrically heated pie baker with a capacity of sixty-five pies every fifteen minutes. Three refrigerators—a large one for cooling meats and two smaller ones for preserving vegetables and dairy products—are also installed.

There are eight service counters in the cafeterias on the first and second floors. Up to date mechanical appliances on these floors include coffee urns, milk freezers, and sanitary drinking fountains. In addition the first floor contains a refrigerating plant, a motor-driven ice cream freezer, an ice making machine with a capacity of two thousand pounds every twelve hours, a motor-driven washing machine, mangles, and steam dryer for washing and drying the linens used by the waiters, chefs, and other help. The ice cream storage room is artificially cooled.

All food is cooked on the third floor and from there is carried to the second and first on sub-conveyers. Moving belts carry trays along in front of the main serving

tables of the cafeteria and gates at the top of the ramp leading from the street can be manipulated so as to direct the patrons to any of the serving tables as desired. This latter feature prevents too great a rush on one table at any time. All dining tables in the cafeteria have enameled tops. Tea, coffee, milk, and sugar are served free to women employees.

The auditorium on the third floor is equipped with a complete stage, footlights, stage settings, and dressing rooms. A motordriven motion picture machine of the latest type is installed in an asbestos booth in the rear of the room. The use of the auditorium, stage, or motion picture machine is given employees for any of their entertainments and dances. The hall is also utilized for lectures or other gatherings.

The Westinghouse Lunch Club houses the largest industrial eating house in the world. All modern features are incorporated in the building, including the use of ramps instead of stairways.

The lunch club is not self-sustaining but is run at a loss in order to furnish food to employees at the lowest possible rate. Since it was first opened employees of the company have responded in great numbers and by their heavy patronage have indicated to the company the need and the economic value of a lunch club of this sort in East Pittsburgh.

THE WAR RECORD OF TETANUS

By WALTER C. ALLEN, M.D., Surgeon to Rochester Works, General Electric Company, Rochester, N. Y.

AS ONE surveys the medical facts of the World War to apply the knowledge to industrial and civil practice, more progress is noted since 1914 than in all the centuries before in certain medical problems. Such a one is tetanus. Hippocrates in 460 B.C., and Galen in 130 A.D., accurately described tetanus. They had correct views as to its prognosis and considered the disease fatal. Up to 1914, even with modern surgery, nursing, and treatment with effective antispasmodics, the mortality was 80 per cent.

Progress in Prophylaxis

Since Nicolaier, 1884, discovered Bacillus tetani, and Kitasato in 1887 grew it in pure culture, the treatment of tetanus had made little progress so far as mortality statistics could demonstrate; but the prophylaxis of tetanus had made very appreciable progress, thanks in great part, to the ably directed and persistent campaign of education of the American Medical Association. Year after year, the tabulations of Fourth of July statistics published in the *Journal of the American Medical Association* showed a diminishing number of tetanus cases and fatalities. The efficiency of prophylaxis had been demonstrated so that when, in the first year of the war, tetanus developed in great numbers of the wounded, orders were issued to all armies requiring the immediate administration of antitetanic serum to all the wounded by the medical officers.

Just as brilliant medical scientists were chosen on commissions to study the war problems of pneumonia and empyema, typhus fever, trench fever, gas poisoning, TNT poisoning, shock, and the use of antiseptic, so, too, the British War Office formed the Tetanus Committee headed by Surgeon General Sir David Bruce with whom was associated Sir William Leishman, pathologist for the British Expeditionary Forces. Assigned to this Committee, among others, were Maj. F. W. Andrewes, Sir K. Goadby, Capt. F. Golla, Dr. A. T. MacConkey, Professor Sherrington, Maj. A. B. Smallman, Capt. W. J. Tulloch, and Dr. F. Ransom. The work of this Committee is recorded in the papers by members of the Committee and the memoranda published by the War Office, a list of which follows:

Andrewes, Major F. W.: On the Intrathecal Route for the Administration of Tetanus Antitoxin, *Lancet*, May 5, 1917.

Bruce, Surgeon General Sir David: Note on the Incidence of Tetanus among Wounded Soldiers, *British Medical Journal*, January 27, 1917; Importance of Early Prophylactic Injections in Trench Foot, *British Medical Journal*, January 13, 1917; Intramuscular V Intrathecal Injections, *Lancet*, May 5, 1917; First Analysis of Cases of Tetanus Treated in Home Military Hospitals from August, 1914, to August, 1915, *Lancet*, October 23, 1915; Second Analysis, From August, 1915, to July 31, 1916, *Lancet*, December 2, 1916; Third Analysis, August-October, 1916, *Lancet*, June 30, 1917; Fourth Analysis, October-December, 1916, *Lancet*, September 15, 1917; Fifth Analysis, December, 1916,-March, 1917, *Lancet*, December 22, 1917; Sixth Analysis, *British Medical Journal*, summary only, March 16, 1918; Tetanus in Home Military Hospitals—Analysis of 1,000 cases, *Transactions of Society Tropical Medicine and Hygiene*, November, 1917; Seventh, Eight, and Ninth Analysis in American Research Committee's Library.

Goadby, Sir K.: The Bacterial Flora of War Wounds, *British Medical Journal*, May 25, 1918.

Golla, Capt. F.: A Comparison of Subcutaneous with Intravenous and Intrathecal Administration of Tetanus Antitoxin in Experimental Tetanus, *Lancet*, May 5, 1917; Analysis of Recent Tetanus Statistics, *Lancet*, December 29, 1917.

MacConkey, Dr. A. T.: The Keeping Qualities of Therapeutic Serums, *Lancet*, London, January 6, 1915; The Prophylaxis of Tetanus, *British Medical Journal*, December 11, 1915.

Sherrington, Professor: Observations with Anti-tetanic Serum in the Monkey, *Lancet*, December 29, 1917.

Smallman, Maj. A. B., with Col. Sir Wm. Leishman: An Analysis of Recent Cases of Tetanus in the B. E. F., *Lancet*, July 27, 1917.

Tulloch, Capt. W. J.: Concomitant Anaerobic Infections in Tetanus, *British Medical Journal*, June 1, 1918; The Isolation and Serological Differentiation of B. Tetani, *Proc. Royal Society*, Series B., April, 1918.

Ransom, Dr. F.: A Modern View of Tetanus, *Lancet*, December 22, 1917.

The British War Office has also published the following

memoranda: Memorandum on Tetanus (Third Edition); Memorandum on the Use of Curative Sera; Anaphylaxis; and Notes on the Nursing of Cases of Tetanus.

The contributions of the British Tetanus Committee to the war history of tetanus are also recorded in a series of tables and diagrams, which will repay careful study (Tables I, II, and III).

Captain Tulloch of the Tetanus Committee made an intensive serological study of the tetanus bacillus. He found that the tetanus bacillus can be differentiated by agglutination tests, like the Pneumococci, into Types I, II, III, and IV; also, that the toxin produced by the four types is the same, and that any one of the four antitoxins will neutralize all or any of the four toxins. Mortality by groups in a series of cases showed: Type I, 11 per cent; Type II, 25 per cent; Type III, 35 per cent; Type IV, all recovered. Here again, an index of prognosis has been established and an avenue for therapeutic research along serological lines opened up.

The British Tetanus Committee, in association with Miss Robertson of the Lister Institute, Dr. McIntosh of the London Hospital, and Captain Henry of the Royal Army Medical Corps, recognizing the symbiotic affinities of Bacillus tetani, and believing that its association with B. Welchi and Vibrion septique, by withdrawing oxygen, favored the growth of B. tetani, developed a triple prophylactic serum, and sent over sixty thousand doses of it to France, but it is understood that the favorable results anticipated were not fully realized. However, studies of this phase of the problem deserve further trial. Maj. Carroll Bull of the American Army medical corps contributed to this study.

The tetanus war record of 1914-1919, as compared with the tetanus record of the wars culminating in the Battle of Waterloo, stands out like Mars at perihelion. Sir Charles Bell, it is recalled, in his diary notes on the Battle of Waterloo, describes a severe case of tetanus in a soldier of the German Legion and wrote: "There are but two cases living of all who had this affection,—this man and a French officer."

The French, like the British, from the start in 1914 concentrated tetanus cases in a special center at Lyons, France, under the direction of Prof. Léon Bérard of the Faculty of Medicine of Lyons, and Dr. Auguste Lumière.

The literature of tetanus is enriched by the record of the work of these able men. The list of their papers is appended.

Bérard and Lumière incisively detail the principles of treatment of tetanus:

(1) Débridement. All necrotic tissue must be excised, and all shell fragments or other foreign bodies and bone sequestra removed. Crystals of sodium persulphate sprinkled in the wound is an effective oxidizing agent and, therefore, inimical to the growth of tetanus bacilli and the elaboration of toxin.

(2) Toxin circulating in the blood must be neutralized by antitetanic serum.

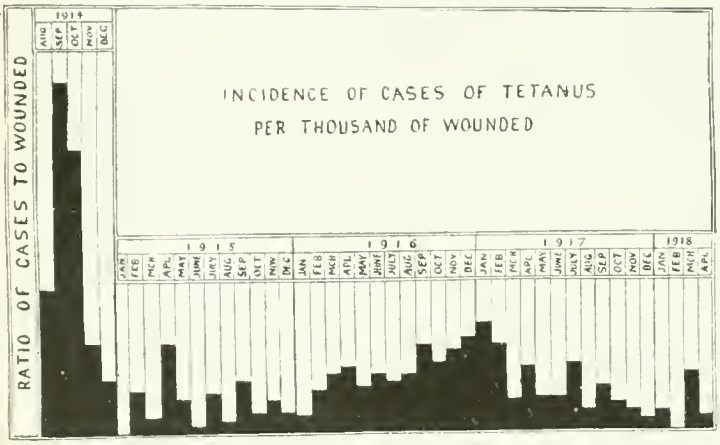
(3) Symptoms, mostly referable to the central nervous system, must be relieved. The administration of sodium persulphate is effective. To prepare this solution, five grams of sodium persulphate are dissolved in 100 cc. of sterilized distilled water. An intravenous injection of 20cc. of the 5 per cent solution is made, morning and evening, for three days. Spasm is usually immediately relieved and subsides completely after the third injection. In using sodium persulphate, care must be exercised. It is advised that a product be used in which the pure crystals have been put up in sealed glass ampules to prevent deterioration. The solution should be freshly prepared for each administration. With the use of sodium persulphate, the patients become less sensitive to external stimuli. Other sedatives, such as chloral, may be used as adjuvants to this treatment. Bérard and Lumière had no mishaps in the use of this agent.

(4) Permanent contractures are not appreciably relieved by sodium persulphate. When the contracture affects the muscles of respiration, Sauerbruck's suggestion of bilaterial phrenicotomy plus artificial respiration has been successful. Local blocking of the phrenic nerve is also available. Brachial plexi and sciatic nerves may be similarly blocked for contractures of the extremities.

Bérard and Lumière described a cerebral tetanus, a new form, thought to be a toxic manifestation, and characterized by hallucinations, delusions, phobias, noctural exacerbations, and excitation. The onset of cerebral tetanus is sudden, with maximal intensity for about a week and with gradual lessening of the severity.

These Lyons surgeons cite the case of an American soldier to illustrate the development of tardy tetanus.

TABLE I.—ANALYSES TABULATED BY BRITISH TETANUS COMMITTEE.



The British Tetanus Committee analyses of cases show the remarkable drop in tetanus cases following the introduction of the prophylactic injection of antitetanic serum, which took place about October 15, 1914.

TABLE II.—TABULATED RESULTS OF PROPHYLAXIS.

ANALYSES	N° of Cases	Recovered	Died	Mortality per cent.
1914-15.	231	98	133	57.7
1915-16.	195	99	96	49.2
Aug.-Oct. 1916	200	127	73	36.5
Oct.-Dec. 1916	100	69	31	31.0
Dec.-March 1917.	100	81	19	19.0
March-June 1917.	100	71	29	29.0
June-Sept. 1917	100	85	15	15.0
Sept.-Dec. 1917	100	84	16	16.0
Dec.-April 1917-18.	100	76	24	24.0
Total.	1226	790	436	35.5

The British Tetanus Committee studies show a reduction in mortality of more than 50 per cent and indicate that the prophylactic serum was instrumental in producing a marked attenuation of the toxin.

The soldier received a shell wound in the right scapular region. Operation for removal of the fragments was fruitless. One month later, a contracture of the right arm and pain in the neck and right shoulder developed. Massage and passive movements were started, but the patient grew worse. He was transferred to the tetanus center at Lyons. The wound was reopened, the fragments again sought and removed. Tetanus bacilli were cultivated from the fragments. Antitetanic serum was given and the patient eventually recovered.

Localized and Tardy Tetanus

The war literature is rich in case reports of both late general tetanus and late local tetanus. Cases of local tetanus are explained in part by the fact that incomplete débridement at the initial operation fails to eradicate the tetanus organisms and leaves a condition favorable to their growth. The bacilli under these conditions, it is thought, become encysted in scar tissue. The first effort to use the affected muscles, as in walking, may tear this scar tissue and liberate the tetanus bacilli so that they become reactivated. Excision of the scar plus antitetanic serum usually takes care of these local contractures. The diagnosis of local tetanus is a difficult one. Pain and contractures localized to the site of old wounds should suggest its existence.

The reactivation of tetanus bacilli is well illustrated by two cases described by Whittemore. One soldier was wounded in eleven places October 1, 1916. The wounds healed, but on March 10, 1917, trismus developed, following walking exercises. The attack cleared up only to relapse September 24, 1917. Another soldier was wounded on June 18, 1916. On April 9, 1917, trismus developed and cleared up only to relapse August 9, 1917.

When we remember that Semple, in 1891, implanted tetanus bacilli on two pens and in 1902 and 1909 succeeded in getting pure cultures from each one, one need not be surprised if tetanus bacilli persist in scar tissue.

Schellekens, who had an extensive experience with tetanus as a surgeon of the Netherlands Ambulance in France, reported many cases of localized and tardy tetanus. He cites the case of a man wounded in the lower back who was operated upon four months later for hernia, following which he developed tetanus and died. He described, also, a case similar to that of Bérard and Lumière, in which tetanus developed fifty days after a wound of the shoulder, when mechanical exercise was started. Evidently, the tearing of scar tissue reactivated the organism. Schellekens reports one case of local tetanus restricted to one side of the body and other cases in which the contracture was limited to the head or a limb.

The head tetanus of Rose, of which Williard reported several cases some years ago, is a special example of tetanus. Injuries about the face, in the presence of tetanus, are apt to be association with disturbed function throughout the distribution of the fifth cranial nerve. Facial paralysis is often seen under these circumstances. Keratitis, conjunctivitis, and iritis are frequent complications.

Ugon, in Morquio's clinic, Buenos Aires, reports a case of head tetanus in a child of twelve, developing thirteen days after receiving a cut over the malar bone with a stone. There was complete facial paralysis on that side.

Tetanus neonatorum is a form of general tetanus, prevalent in the southern states, Central America and South America. It is an index of the care of the new-born, specially in the warmer climates. Gessner, who studied the statistics of tetanus from the records of Charity Hospital, New Orleans, for the years 1908 to 1918, found twenty-five cases of tetanus neonatorum in total of 427 cases. Gomes reports 207 cases of tetanus in infants under two years out of a total of 280 deaths from tetanus in the ten-year period from 1905 to 1915, in the city of S. Paulo, Brazil. Coni reports 8,347 cases of tetanus neonatorum in a total of 10,868 cases in Argentina.

Table III.—Trismus an Index of Prognosis.

	Cases.	Recovered	Died.	Mortality per cent.
A Trismus the earliest symptom.				
(1) With complete closure of jaws developing within 24 hours after onset of symptoms	17	7	10	58.7
(2) With complete closure of jaws, developing after 24 hours	19	14	5	26.2
(3) With incomplete closure of jaws	111	85	26	23.4
B, Trismus occurring after other symptoms of tetanus have shown themselves	57	49	11	19.2
C General tetanus without trismus	19	19	3	15.7
D Local tetanus	77	77	0	0

The British Tetanus Committee study of trismus shows that it is a valuable index of prognosis. It is also interesting to note that all of the twenty-seven cases of local tetanus recovered.

Determination of Dosage

The data as to the efficacy of antitetanic serum in prophylaxis and therapeutics rest upon empirical grounds. This explains the furore over the dosage of diphtheria antitoxin. In the absence of exact data, the dictum, "Give enough," should guide one. Bezy thinks from 2 to 4 cc. of serum will give protection, but the consensus of opinion favors 1,500 units. The French, British, and American armies used 1,500 unit doses for prophylaxis.

Tizzoni, Bologne, noted in the 1914 and 1915 campaigns in France an incidence of tetanus among wounded Italian troops, most of whom had received prophylactic serum, of 0.5-2.5, or 5 per cent. He suspected the dose to be insufficient. He experimented on animals and developed the fact that ten times what had been regarded as the maximum prophylactic dose could be administered. Subsequently, 40,000 gravely wounded Italian troops received the heroic prophylactic dose of 15,000 units. Only eleven cases of tetanus developed in these 40,000 wounded. Four of the eleven died. Three of the four lay in No Man's Land from one to three days before receiving the prophylactic serum; so only one fatal case of tetanus remained unexplained. Ochsner of Chicago has adopted the massive prophylactic dose for use in his clinic at Augustana Hospital.

The subcutaneous administration of serum is favored for treatment as being the safest procedure. Serum into vein, muscle, or subarachnoid space is also administered

and sometimes it is administered in combination of two or more routes. Therapeutic doses of 30,000 units, repeated daily, are usually given; but doses of from 50,000 to 500,000 units are frequently administered. Here, too, the dictum, "Give enough," must govern dosage. The prophylactic serum confers immunity for seven to fourteen days at the most, so that during the war the practice of giving four doses of the prophylactic serum at seven day intervals was adopted, as was also the administration of a prophylactic dose immediately before delayed operations on the wounded.

Inasmuch as the immunity conferred was incomplete as had been clearly demonstrated through the development of local and tardy tetanus in those who had had prophylatic serum at the time of injury, Bezy proposed to complete it by vaccination. He used as vaccine an iodized toxin. This toxin corresponded to that used at Institut Pasteur to prepare the horses providing serum. This toxin was of a strength such that 0.0001 cc. sufficed to kill a guinea pig of 400 grams. A mixture of two-thirds toxin and one-third iodized solution (iodin 1 gm., iodid of potassium 2 gm., distilled water 200 gm.) gave a liquid effective for vaccination. Bezy injected 4 cc., 8 cc., and 12 cc. at intervals in much the same way that typhoid vaccination is effected. There were neither local nor general reactions.

London and Aristovsky, in 1917, working in the Institute of Experimental Medicine, Petrograd, reported that they had succeeded in obtaining tetanus toxin and digestive ferments, carrying them down by colloids. Ammonium sulphate in 17 per cent solution was added to the culture fluid of tetanus bacilli and centrifuged. The sediment was washed with 3 per cent ammonium sulphate solution. The sediment, after centrifuging, contained tetanus toxin. It was dried and then rinsed repeatedly with ammonium sulphate. The dried toxin was of a strength such that 0.00000002 gm. was fatal to white mice two days after injection. Such a toxin would make it possible to develop a standardized product from which vaccines could be prepared and administered by methods such as proposed by Bezy. It would also seem possible to develop tetanus lipovaccines along lines advocated by Russell for typhoid vaccination.

Komayashi has submitted experimental data, indicating that antitetanic serum administered within twenty-four hours of the injection of toxin protects, while serum administered after forty-eight hours of injection of toxin is ineffective, all of which again emphasizes the importance of very early administration of prophylactic serum. His work also indicates that a quantity of antitoxin sufficient to neutralize the available toxin in a given case was effective in the proportion of one by subarachnoid route, ten by intravenous route, three hundred by subcutaneous route; that is to say, three hundred times as much antitoxin would he needed, for subcutaneous injection as would be needed for subarachnoid injection. This work was performed on guinea pigs.

Tetanus, as an incident of Fourth of July celebrations has been well nigh eradicated. It now remains for industrial surgeons to eliminate it as an element in their practice by the more general use of the prophylactic serum. The danger of tetanus is especially great where new construction is going on, as unremoved nails in discarded lumber are responsible for a large number of puncture wounds of the feet.

Bibliography

Antoine: Late Tetanus, La Presse Médicale, 1918 June 10.
Bacelli: Phenol Treatment, Berl. klin. Wchnschr., 1911, p. 1022.
Bezy: Vaccine, Lancet, London, 1918, ii, p. 523.
Begbie: Jour. Roy. Army. Med. Corps, London, 1911, xvi, p. 31.
Bengtson and McCoy: Tests for Detection of B. tetani, Am. Jour. Pub., Health, 1919, ix, p. 427.
Bérard and Lumière: Treatment of Tetanus, Presse méd., 1918, xxvi, p. 469.
Bérard and Lumière: Cerebral Tetanus, Bull. de l'Acad. de méd., Paris, 1917, lxxviii, 744.
Bérard and Lumière: Treatment of Contracture after Tetanus, Bull. de l'Acad. de méd., Paris, 1917, lxxviii, 582.
Castro: Partial Tetanus, Rev. méd. d. Uruguay, 1919, xxii, p. 691.
Cheret: Prophylaxis, Bull. de l'Acad. de méd., Paris, 1917, lxxviii, 81.
Coni: Tetanus in Argentina, Semana méd., Buenos Aires, 1919, xxvi, 104.
François: Partial Tetanus, Paris méd., 1918, viii, p. 255.
Gessner: Therapeutics, Jour. Am. Med. Assn. 1918, lxxi, 867.
Hibbs and Sheaf: Brit. Med. Jour., 1910, ii, p. 1402.
Hill: Analyses of Cases, Arch. Int. Med., 1911, viii, p. 747.
Huggins: Post-Operative Tetanus, Surg. Gynec. and Obst., 1920, xxx, 142.
Hurst: Local Tetanus, Brit. Med. Jour., 1919, v, 579.
Hygenic Laboratory, Bulletins 43, xcv, 112 and 115.
Kitasato: Ztschr. f. Hyg. Leipzig, 1889, vii, 225.
Kobayashi: Therapeutic Efficiency of Serum, Japan Med. World, 1919, No. 290.
Lewis: Head Tetanus, Jour. Am. Med. Assn., 1920, lxxiv, 459.
Leyva: Sodium Persulphate Treatment, Surg. Gynec. and Obst., 1917, xxv, 613.
Leinhard: Tardy Tetanus, Rev. méd. de la Suisse romande, 1919, xxxix, 453.
London and Aristovsky: Preparation of Tetanus Toxin, Russk. Vrach., 1917, xvi, 341.
McCoy, Leake and Corbitt: Tetanus in Court Plaster, Public Health Reports, 1917, xxxii, 1450.
Meltzer and Auer: Magnesium, Salts in Treatment of Tetanus, Jour. Exper. Med., 1906, viii, 692.
Meyer: Innere Medizin, 1913.
Miller: Am. Jour. Med. Sc., December, 1918.
Nicolaier: Deutsch. med. Wchnsch., 1884, x, 842.
Public Health Reports Reprints, No. 27, p. 289.
Rostowzew: Berl. klin. Wchnschr., 1908, No. 36, p. 37.
Raymond: Tetanus Consecutive to Trench Foot, Lancet, London, 1918, ii, 526.
Rocher: Tardy Tetanus, Jour. de méd. de Bordeaux, 1920, xci, 37.
Robles: Tetanus Neanatorum, Nederlandsch Tydsch. voor Geneeskunde, Amsterdam, 1918, i, 800.
Schellekens: Local and Tardy Tetanus, Nederlandsch Tydsch. voor Geneeskunde, Amsterdam, 1917, ii, 1530.
Speed: Recurring Tetanus, Med. and Surg., 1918, ii, 499.
Stassen and Vonsken: Serotherapy, Arch. Med. Belges, 1919, xxii, 255.
Suzaki: Tetanus Toxins, Jour. Imm., 1918, iii, 233.
Tizzoni and Perucci: Determination of Immunizing Power of Serum, Policlinico, 1919, xxvi, 109.
Ugon: Head Tetanus, Arch. Lat.—Am. de. Ped., Buenos Aires, 1918, xii, 125.
Wassermann and Tekaki: Berl. klin Wchnschr. June 3, 1898.
Weber: Tetanus Infection Through Gelatine, Practitioner, 1919, cii, 823.
Whittemore: Relapsing Tetanus, Jour. Am. Med. Assn., 1918, lxxi, 1995.

TELLURIUM A HAZARD IN INDUSTRY

A preliminary account appears in the *Public Health Reports* for April 16, 1920, of the importance of Tellurium as a health hazard in industry. The report is prepared by Marvin D. Shie, M.D., assistant surgeon, and Forrest E. Deeds, scientific assistant, United States Public Health Service. The effects of tellurium are thus summarized:

The tellurium poisoning encountered thus far in industry has not been severe. The primary effects are suppression of the sweat, of the saliva, and of the acid in the gastric juice. This leads to a dry, itching skin, dry mouth, metallic taste, anorexia, nausea, vomiting, indigestion and constipation. Somnolence is often a prominent symptom, The earliest symptom of tellurium absorption is the garlic odor to the secretions and excretions due to methyl telluride. Secondary effects to be expected are impaired nutrition with emaciation and where the workers are exposed to high temperatures, increased susceptibility to heat exhaustion.

The diagnosis of tellurium poisoning may be made from the garlic odor of the excretions, the suppression of the sweat, the dryness of the mouth, and the demonstration of tellurium in the urine or feces.

The preventive measures are similar to those used for other metallic poisons and may be summed up as good working conditions and proper personal hygiene.

In treatment, of course, the most important measure is the removal of cause. After that pilocarpin may be used to counteract the effect of the tellurium; the avenues of elimination should be opened and excretion favored by promoting secretions, diuresis, and free bowel movements. Hydrochloric acid may be administered to remedy the deficiency of acid secretion. The remainder of the treatment is symptomatic. The prognosis so far has been good, the condition gradually improving upon prompt removal of the cause.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

THE CAMPAIGN AGAINST INFANT MORTALITY

THE campaign against infant mortality which began in France with the establishment of the first *gouttes de lait* twenty years ago has broadened out to include a comprehensive program of health supervision which extends from before birth to the date of entrance into school.

From the organization of the American Association for Study and Prevention of Infant Mortality in 1909, the "milk station" rapidly developed into the "babies' dispensary"—its objective being the systematic supervision of the health of the infant and the instruction of the mother in the essentials of infant hygiene, with the public health nurse as a home visitor supplementing the more formal teaching of the clinic itself. The results attained by this kind of health education have been almost spectacular in nature,—the reduction in a period of thirty years of the infant mortality rate of New York City from 227 deaths under one year per one thousand births to 92 deaths per one thousand births being only an extreme instance out of hundreds of similar ones which might be cited.

During the last few years, however, we have realized that the brilliant success which has been achieved in the reduction of infant mortality was limited to certain causes of death, while other factors in the infant death rates have remained untouched. In almost any series of mortality rates a high infant mortality rate always implies a high incidence of diarrhea and enteritis. Heredity, prenatal care, poverty—all are important factors. Education plays an important rôle. The data cited below from a recent report of the United States Census on Mortality Statistics for 1918 bring out with clearness the contrast between our successes and failures.

A STUDY IN INFANT MORTALITY

Infant Deaths from Certain Causes per 1,000 Population Under One Year of Age, United States Registration Area.

	1910	1911	1912	1913	1914	1915	1916	1917	1918
Diarrhea and Enteritis	37.7	29.0	26.2	28.1	24.7	22.6	24.1	23.2	22.2
Malnutrition	6.6	6.4	6.5	6.8	7.3	6.9	7.5	7.5	7.5
Premature Birth	17.5	18.4	19.1	20.0	20.1	20.3	21.2	21.1	22.1
Congenital Debility	13.2	14.6	15.0	15.5	13.4	11.9	10.3	9.4	10.1
Injuries at Birth	3.2	3.7	3.7	3.9	4.2	4.3	4.4	4.6	3.9
Sum of Above	40.5	43.1	44.3	46.2	45.0	43.4	43.4	42.6	43.6

The death rate from diarrhea and enteritis has been reduced from an average of 31.0 for 1910-12 to an average of 23.2 for 1916-18, a saving of 7.8 lives per one thousand. On the other hand, the combined death rate from malnutrition, premature birth, congenital debility, and injuries at birth, has increased from an average of 42.6 for 1910-12 to an average of 43.2 for 1916-18. The intestinal disorders, which prevail for the most part from the third month of life, are yielding to preventive measures but the causes of mortality which operate at birth and during the first month have continued to operate unchecked.

It is this fact which has made it clear that the machinery of medical examination and hygenic supervision must be extended backward to include the expectant mother, and the experience of the prenatal clinics in Boston and New York have shown that the mortality of the first month is quite as amenable to preventive measures as that of the later months of infant life. The ratio of still births to living births has been reduced in Boston to 1.0 per cent for cases with prenatal care, as compared with 3.4 per cent for the population as a whole; and the mortality of infants in the first two weeks of life has been reduced to 11.9 per cent as compared with 34.2 per cent for the population as a whole.

In order to cope with the broader problems of the present and future campaigns against infant mortality, the Association for Study and Prevention of Infant Mortality has changed its name to the American Child Hygiene Association and, under the able presidency of Dr. Philip Van Ingen, is entering upon a corresponding extended field of service. In June it issued the first number of a new monthly magazine, *Mother and Child*, which we welcome most heartly to the ranks of public health journalism. This first issue contains papers of great value by Sir Arthur Newsholme and Dr. F. L. Adair on the development of prenatal work in England and France, and a discussion by Dr. R. D. Curtis of the supervision of that neglected twilight zone of childhood, the "pre-school" age. In the same batch of mail which brought this new journal is Bulletin Number 69 of the Children's Bureau on "The Child Welfare Special," describing the latest technic in reaching the rural mother and child by means of a child welfare motor truck and a pamphlet issued by the Association for Improving the Condition of the Poor of New York City, entitled "Developing Child Health Via Community Organization," which outlines the admirable program carried out in two selected tenement districts for prenatal care of the expectant mother, and for the examination and supervision of the child of pre-school age.

We stand on the threshold of a new era in child hygiene; and we may confidently look forward to the development within the next few years of a complete and coordinated program of medical supervision and health education, which shall begin with the unborn babe and shall end only when the child passes from school into the world of practical achievement, with the fullest perfection of development and the fullest reserve of physical health and power within the possibilities of its inherited capacity.

EDITOR.

MEMORANDUM ON MALNUTRITION

By I. A. GOLDSTON, M.D., Assistant Director of Health for the Community Councils of New York, New York City

Much of the mystery of medicine which has in the past centered about the processes of metabolism has been cleared up by painstaking laboratory analyses, and the necessary chemical constituents of food have been fairly well worked out.

Getting a right régime carried out, however, is a more difficult matter. Scientific knowledge is available on the one hand. The problem remains, on the other, to break up the association in the popular mind which pairs off malnutrition with poverty instead of with organic disorder or bad food habits.

The remedy in most cases is not more food, but food better prepared and more nicely adapted to individual needs; and, as in other exigencies of the present time, the method of applying the remedy lies in training,—more training for the whole people in the fundamentals of health.

PRELIMINARY to any consideration of malnutrition it must be stated that the problem is very intricate and difficult. This almost platitudinous observation is warranted in the light of experience. Too many are the people who enthusiastically turn to the problem and who, unwarned of the difficulties confronting them, are too soon discouraged. Too many are the sporadic and fruitless attempts at solution in brief of a problem that is extensive and whose etiologic factors are manifold. It were wiser by far, and certainly more economical, to survey the field at first and to become acquainted with its various phases. It were wiser by far to be forewarned of all the difficulties and to prepare for a long and laborious task. For in the last analysis the solution of the problem of malnutrition is intimately associated with the solution of all community-wide disease problems and with the functional development of preventive medicine. Not until the general public is sufficiently educated in matters of health and hygiene to be able intelligently to think of food in terms of fuel, and of the body in terms of a physicochemical engine; not until the general public is untaught its thousand superstitions; and not until the common intelligence of the entire community is applied to this community problem, is there hope of eradicating the condition of malnutrition.

Insufficiency Not Malnutrition

Malnutrition does not invariably indicate insufficiency of food. Yet among the laity such is its common interpretation. By an interesting mental association of terms nutrition brings to mind food, and malnutrition brings to mind insufficient food. The train of thought then is switched from insufficient food to poverty, and poverty stirs up the very human emotions of pity and charity. Thus all scientific consideration of the problem is made impossible and people who attack the problem, with excellent intentions, come out of the process philanthropists.

Malnutrition in its simplest sense implies a condition in which the intake and absorption of nutriment are either insufficient in quantity or so poor in quality as to fail in supplying a sufficiency of the required elements for normal growth and function.

A.—The causes of malnutrition may be:
1. Insufficient food (gross bulk).
2. Poor mixture of foods.
3. Lack of "live" foods, *i. e.*, salt and mineral containing foods.

These three may be considered the exogenous factors, and of these the second and third are the important ones. True, in certain of the poorer sections of the city there are ill nourished children whose condition is due to insufficient food, but these children constitute only a small percentage of the total The greater number of sufferers may trace the cause of their condition to an unintelligent mixture of foods, and to the predominance in their diet of vitiated, preserved, and treated articles of food.

B.—In addition to the exogenous factors there are certain endogenous ones; these are related to the vital, mechanochemical process of the preparation and distribution of the nutriment elements for cellular use. The endogenous factors are too numerous and of too technical a nature to render possible their complete enumeration here. Such an enumeration is not essential to our present purpose, but they may all be included under, and expressed by the term "Organic and functional malconditions." Among the principal ones may be enumerated:
1. Bad teeth.
2. Nervousness.
3. Impaired respiration.
4. Cardiac derangements.
5. Gastric derangements.

C.—Still further may be enumerated certain factors neither truly exogenous nor endogenous, such as:
1. Irregular feeding.
2. Insufficient rest, etc.

These three large groups of etiologic factors—A, B, and C—may be taken as the chief causative agents of malnutrition, and as such must serve as the points upon which remedial activities must concentrate. Since there is no hope for a complete and permanent cure of any malcondition save in the removal of that malcondition's causative forces, whether that malcondition be an individual disease or a social discord, there is no hope of a solution of the problem of malnutrition save in so far as its etiologic factors are removed. We must, therefore, review the causes enumerated and see how each of these may be treated.

Exogenous Factors of Malnutrition

(1) *Insufficient food (gross bulk).*—This is primarily due to insufficient family income, and hence is part of a problem in social economics. For the solution of this difficulty there is needed, immediately, a minimum wage that will guarantee a standard of living to the worker and his or her family, and ultimately a more equitable distribution of wealth in the form of wages that nearer approximate values produced. Properly viewed, this form of malnutrition is secondary to an economic malcondition, and should be treated as part of the primary and greater problem.

(2) *Poor mixture of foods.*—This is due, of course, to ignorance of dietetic facts and laws. For this problem education is the solution: education in dietetics, not in terms of calories, but in the broader terms of physiology. This education should begin in the public school, and should be extended as a community movement. By or-

ganizing classes composed of the women members of the councils, and which are under the supervision of a single or a group of the district physicians, weekly sessions may be held during which the nutritive values of various articles of food and ideal menus can be discussed and considered. Food values in terms of costs, too, might be discussed, the services of domestic scientists being engaged for such periods.

On this topic two points of importance must be noted: (a) Most of malnutrition is due to an unbalanced diet, the diet being sufficient in bulk, but improperly made up; and (b) in these days of the H. C. L. the cost factor of foods becomes important and the overcoming of the evils of an unbalanced diet may be linked up with the equally important matter of learning the nutritive values of foods in terms of dollars and cents.

(3) *Lack of live foods.*—Malnutrition due to the lack of "live" foods is really a special division of Section 2. In this last condition we may have a diet balanced as to carbohydrates, fats, and proteins, but devoid of those essential growth-stimulating elements which the scientists, for want of better name or knowledge of, have called "vitamines." These protein, growth-stimulating elements which have but recently come into scientific prominence, like most nitrogen compounds, are very unstable and are destroyed when the foods containing them are subjected to the various preserving processes and agents. Unless, therefore, a diet, in addition to being balanced, also contains a sufficient quantity of these "living" foods, its effects will be the same as, and under certain conditions more serious than, the effects of an unbalanced diet.

The remedy for this form of malnutrition, as for the above, is dietetic education; education, it is to be repeated, not so much of a theoretic as of a practical nature.

Endogenous Factors Considered

The endogenous factors of malnutrition, grouped as they are under the heading of "organic and functional malconditions," point to the extensive and unattended need for medical treatment. More immediately these factors indicate the need of thoroughgoing physical examination of the young, both of school and pre-school age. This examination should be both thoroughgoing and periodic, and should be followed by proper medical, dental or surgical treatment, wherever and whenever these are indicated. For this function the citizen groups should in an organized and constructive manner bring pressure to bear upon their local governments to provide for an extension and improvement of the present school medical services. It is proverbial that in the United States more is spent on health for pigs than for babies.

One very important item among the endogenous factors is bad teeth.

(1) On this item we must note the existence of a vicious circle of interplay between exogenous and endogenous factors, all converging toward the ultimate of lowering of the vital power of the organism. Thus bad teeth mean poor digestion; poor digestion, through a series of results, leads to poor teeth, and so on. In fact, it may be said very definitely that the various factors enumerated are treated categorically only for the convenience of so handling them. They are, in truth and in reality, not so distinctive. Nor is it in every case possible to tell whether bad teeth, nervousness, or gastric derangement gave rise to a condition of malnutrition or malnutrition gave rise to bad teeth or nervousness or gastric derangement.

A type of dental treatment made use of in certain of our neighboring states, but not employed to any extent in our schools, is dental prophylaxis. This treatment is preventive, pure and simple. It aims at preventing the conditions favoring decay. Technicians, trained in dental prophylaxis, periodically examine and clean the teeth of the school children, removing the accumulated debris and tartar, and cleaning away all stains and discolorations. Since these technicians need not be dentists, their services usually are not costly, but are most valuable.

(2) What has been said at the head of this chapter and under bad teeth may in a general way be held true for all the other enumerated endogenous factors, save that nervousness needs such particular treatment as is aimed at a cure of the abnormal irritability. For this group of sufferers extra classes should be formed in which special attention can be given to them. The curriculum must be modified, periods of rest must be included in the day's session, and in a general way treatment must conform to individual needs.

So, too, impaired respiration, commonly due to adenoids, enlarged tonsils, hypertrophied turbinates, or deflected septum, demands surgical treatment, and cardiac and digestive derangements require particular curative treatment.

Irregular feeding and insufficient rest so plainly indicate their relations to malnutrition and so clearly point to their treatment that little space needs to be given to them in this memorandum. However, attention should be called to their importance. It is a vicious habit, which many school children develop, of bolting their luncheons and rushing to the school yard for a remaining half hour's break-neck playing. To play is certainly good for the growing child, but the time element is important and should be considered. Following luncheon should come a period of rest during which digestion may be carried on *sans* disturbance. As it is, the playing draws the blood away from the alimentary system to the regions of extra muscular activity, with the result that fatigue is increased, and the food is but slowly and poorly digested.

Summary and Conclusion

The analytical enumeration of the various etiologic factors of malnutrition is of value (1) in the orientation it makes possible and, (2) in the clarity with which such an enumeration points at the proper mode of attacking the problem.

From the above analysis it is hoped it will be seen that the problem of malnutrition is very complex and that no single procedure can, therefore, prove remedial in the fuller sense. In fact, since the problem of malnutrition is seen to be so intimately associated with the many other contemporary social problems, no hope may reasonably be entertained for the complete eradication of the condition before our social organization has progressed so far as to have intelligently eliminated all those pressing malconditions which so seriously strain our social fabric.

However, there are certain paths of action that may be followed to advantage in the treatment of a problem of malnutrition. The first of these is education: specific and general health education.

The socialization of knowledge is the first ingredient of a true panacea. The other ingredient is a conscious and intelligent pursuit of the ends so pointed out. People must know, and their education on the matters of health should begin in the public school and should be extended through all of school life and further. To the three R's, without the possession of which no man may be deemed even rudimentally educated, should be added the fourth R—standing for the Rules of Health, and the last should be as firmly insisted upon as the first. The community organizations here may prove efficient instruments. Not

only can they serve immediately as educating agents conducting open forums for the instruction of their mature members; but also they can bring pressure to bear upon the proper sources, with an aim toward modifying the curriculum to include a more extensive study of hygiene than is given at present.

Another important line of activity is the extension of municipal health activities. Health is a community problem best dealt with by the community through its own machinery. Health is not a private matter. The various departments of the Board of Health should, therefore, be urged to broaden and deepen their scopes of activity, especially in those treating the young.

And, lastly, local experiments should be conducted wherever the required facilities exist or can be brought into being. These experiments, of course, for the present can prove no more than palliative in effect; but they are precious in the facts upon the treatment of malnutrition which they indirectly bring to light.

TYPHOID FEVER AND ITS SOURCES IN MASSACHUSETTS

By STANLEY H. OSBORN, M.D., C.P.H., Director, Bureau of Preventable Diseases, Connecticut State Department of Health, Hartford, Conn.

THERE were 2,007 cases of typhoid fever reported in Massachusetts during the two years 1918 and 1919; of this number 158 cases were fatal in 1918, giving a death rate of 4.0 per one hundred thousand; and 1919 there were 103 deaths, which established the remarkable death rate of 2.6 deaths per one hundred thousand. This is the lowest rate that any state has reported up to the present time for this disease. Very few persons ten years ago expected to see a state death rate from typhoid fever less than that of measles, scarlet fever, or whooping-cough; but in Massachusetts there were fewer deaths from typhoid fever in 1919 than any of those diseases. (Table I.)

There were investigated in 1918, 752 of the 1,067 typhoid cases reported; and in 1919, 913 cases were investigated of the 940 cases reported.

These cases were investigated by the more efficient boards of health, the state district health officers, and the epidemiologist. The data collected are interesting, because they indicate the source of infection of typhoid cases in a state with a temperate climate, where the larger communities are furnished with good water supplies and sewage disposal systems. A study of the data obtained is given on this and the following pages (Table II).

Of the 1,665 cases on which data were collected the source of infection was found in 21.8 per cent of the cases in 1918 and in 30.5 per cent in 1919; or, for the two years, 26.6 per cent. It serves to indicate what investigation of the individual cases will bring forth.

The Several Sources Searched

Water.—The drinking of polluted water has been but a slight factor in recent years in the incidence of typhoid; but during 1919, 38 cases were apparently infected by a municipal supply, 18 cases by a polluted spring, and two outbreaks of 13 and 6 cases each, by a polluted well. In each epidemic large numbers of bacillus coli were found in the water. The remaining 5 cases were infected by polluted water when on visits to Maine and Canada.

Milk.—In 1918 one outbreak of 6 cases on a milk route was due to milk infected by a clinical case, and 48 cases were caused by milk infected by a carrier. In 1919, milk infected by typhoid bacilli carriers caused 56 cases of typhoid, 3 of which were infected in New Hampshire.

Food.—Food, other than milk, is undoubtedly one of the chief factors in causing typhoid fever, because the typhoid bacilli carrier in handling food, infects it, and one which accounts for sporadic cases occurring here and there in isolated parts of communities. During 1919 a food outbreak of ten cases occurred, but the suspected carrier was not confirmed by bacteriological tests, although a positive Widal test was obtained.

Probably 50 per cent of the "endemic" typhoid in Massachusetts is caused by food infected by a carrier, particularly by carriers in households, restaurants, hotels, and similar places.

Contact with Clinical Cases

There were 221 cases, or 13.3 per cent of those investigated in 1918 and 1919, who had been in contact with clinical typhoid cases. The great factor in contact, however, is contact with a typhoid bacilli carrier, which has been discussed under "Food."

The part played by flies as agents in the spread of

Table I.—Deaths and Death Rates of Certain Diseases.

Year	Measles		Scarlet Fever		Whooping Cough		Typhoid Fever	
	Deaths	Death Rate*	Deaths	Death Rate*	Deaths	Death Rate*	Deaths	Death Rate*
1916	149	4.0	182	4.9	283	7.6	247	6.6
1916	392	10.4	127	3.4	346	9.2	172	4.6
1917	371	9.7	120	3.1	243	6.3	178	4.6
1918	619	13.2	76	1.9	699	17.8	154	4.0
1919	183	4.6	130	3.3	319	8.0	103	2.6

*Death rates are per 100,000 population.

Table II.—Source of Infection of Typhoid Cases

Classification	Number of Cases		Total Cases	Per cent of Cases Investigated
	1918	1919		
Direct Contact with typhoid case	98	123	221	13.3
By milk infected by a carrier	46	56	102	6.1
By a typhoid carrier, other than by milk.	4	10	14	0.8
Milk infected by a clinical case	6	0	6	0.4
Food outbreak, probably a carrier	0	10	10	0.6
By water containing large numbers of b. coli.	10	80	90	5.4
Totals	164	279	443	26.6
Unknown source of infection	688	634	1,222	73.4
Totals	762	913	1,665	100.0

typhoid fever in the state is unknown, but it is probable that the cases from this cause are few, certainly less than 5 per cent of the cases reported. There was not a single epidemiological case record in which the source of infection was given as flies. As a rule, it has been found that where flies can carry the infection, personal contact can also be the cause.

The manner in which the larger communities are sewered, the lack of privies, the hospitalization of typhoid cases, and the disinfection of excreta from typhoid cases, furnish little opportunity for the mechanical transmission of typhoid bacilli by flies.

Table III.—Age Groups of Typhoid Cases, 1917-1919

Age Groups	1917 Cases	1917 Per cent of Total	1918 Cases	1918 Per cent of Total	1919 Cases	1919 Per cent of Total
0- 4 years	36	3.1	49	4.9	35	4.0
5- 9 years	117	10.0	132	13.3	101	11.4
10-14 years	159	13.4	139	13.8	137	15.5
15-19 years	155	13.2	130	13.1	125	14.1
20-24 years	189	16.1	125	12.5	101	11.4
25-29 years	173	14.6	98	9.8	97	11.0
30-34 years	92	7.8	97	9.7	85	9.6
35-39 years	79	6.7	76	7.6	76	8.6
40-44 years	61	5.2	65	6.5	37	4.2
45-49 years	42	3.6	27	2.7	34	3.9
50-54 years	24	2.0	32	3.2	21	2.4
55-59 years	28	2.4	17	1.7	15	1.7
60 and over	22	1.9	12	1.2	19	2.2
Totals	1,177	100.0	999	100.0	883	100.0

Table IV.—Sex of Typhoid Fever Cases, 1917-1919

Year	Males	Females
1917	857	673
1918	591	475
1919	530	408
Totals	1,978	1,556

Carriers as a Menace

The intermittent typhoid bacilli carrier is probably the greatest single factor in the causation of typhoid in Massachusetts today. These carriers infect but one or two cases a year, or none at all, but by personal contact or by food, particularly if they are housewives or cooks, they are responsible for many cases. In 1919 six of this type of carriers were isolated and they were responsible for only seven cases. Further investigation along this line will disclose more of these "household carriers," a most dangerous type, because of the insidious manner in which they infect their victims. There are now fifty-one carriers on record in the files of the Department, seven of whom were found in 1918 and thirteen in 1919.

The search for carriers is not an easy task and is often discouraging in results; but the careful compilation of epidemiological case records, and the securing of blood, feces, and urine from each suspected carrier for bacteriological examinations, at the lowest estimate should yield at least two carriers for every one hundred cases studied. In 1919 there were 1.4 carriers found for every one hundred typhoid cases.

Household Contact with the Sick

There were 221 cases caused by contact with a sick case; of this number, 170 cases were secondary to a typhoid case in a family. Considering the fact that there were 6,388 persons comprising the families of the 1,658 cases studied, this gives the rather startling figure that one in thirty-eight of those exposed to a case in a family was infected and had typhoid fever. This ratio is improving, for in 1918 it was 1.31, and in 1919 it was 1.41. However, if all members of the family were inoculated with "triple vaccine," this ratio would be considerably bettered, for more than one-half of the contacts had the onset of the disease three weeks or more after the physician's visit to the primary case, indicating infection from the sick person after his visit. Sixty-eight families had two or more cases, of which number three families had five cases; two families six cases; one family seven cases; and one family eight cases. These are startling figures in this enlightened era, but typhoid vaccine was not administered; if it had been, some of these secondary cases would not have occurred and lives would have been saved.

Past History of Typhoid

In 129 cases in 1918 and 1919 there had been other members ill with typhoid one year or more prior to the present case. In many instances laboratory examinations were obtained, and ten carriers were found, though it was impossible to obtain specimens of feces and urine in all cases, because of opposition from families.

In practically every case of typhoid, when a member of the patient's family gives a past history of typhoid fever, he should be suspected a carrier, and a Widal test and laboratory examinations of feces and urine should be carried out.

The Problem of Endemic Typhoid

A certain amount of typhoid fever is what may be termed "endemic,"—that is, the cases do not occur in epidemics. In 1917, 171, or 11 per cent, of the typhoid cases were in epidemics; whereas in 1919, 157, or 17 per

Table V.—Occupation of Typhoid Cases, 1918 and 1919

Occupation	Typhoid Cases
School	413
Housework	210
Cotton Mill Workers	180
Machinists	50
Shoe workers	37
Nurses	26
Farmers	17
Rubber workers	17
Miscellaneous	358
Total	1,308

Table VI.—Racial Distribution of Typhoid Cases

Nationality	Cases
Native born	791
Italian	117
French	92
Portuguese	78
Polish	44
English	40
All others	353
Total	1,515

Table VII.—Number of Cases Reported for Each Death Reported

Year	Cases	Year	Cases
1912	7.8	1916	8.8
1913	8.6	1917	8.8
1014	8.7	1918	6.7
1915	9.0	1919	9.1

Table VIII.—Fatality Rate of Typhoid Cases

Year	Per cent	Year	Per cent
1912	12.9	1916	11.4
1913	11.7	1917	11.3
1914	11.5	1918	14.8
1915	11.1	1919	11.0

cent, of the cases were in epidemics. This increase in epidemic cases is the result of the reduction of endemic typhoid in the state by better sanitary conditions and the inoculation with typhoid vaccine of the men who entered the army in 1917, 1918, and 1919. It is felt that the endemic typhoid in Massachusetts is due almost wholly to the typhoid bacilli carrier.

Having located the source of infection of 26.6 per cent of the cases, it is interesting to look back fifty years and see to what causes typhoid fever was attributed. In 1871, before the typhoid bacillus was known, the State Board of Health Report gave the three possible theories of the cause of typhoid fever as follows: (1) "Propagation by drinking water made foul by the decomposition of any organic matter, whether animal or vegetable, and especially by the presence in such water of excrementitious matters discharged from the bodies of those suffering from typhoid fever. (2) Propagation by air contaminated by any form of filth, and especially by privies, cesspools, pig sties, manure heaps, rotten vegetables in cellars, and leaky or obstructed drains. (3) Emanations from the earth occurring especially in the autumnal months and in seasons of drouth."

Table IX.—Seasonal Incidence of Typhoid

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1914	185	82	107	97	126	125	159	256	382	414	206	194	2,333
1915	105	106	111	72	130	103	174	265	322	412	255	149	2,204
1916	81	38	55	54	77	72	128	268	369	179	115	79	1,515
1917	68	45	69	111	66	104	109	246	264	246	120	98	1,546
1918	53	39	41	52	71	64	112	184	261	97	49	44	1,067
1919	55	70	47	44	42	45	69	134	146	154	81	53	940

Table X.—Percentages of Monthly Distribution of Typhoid

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1914	7.9	3.5	4.2	4.2	5.4	5.4	6.8	11.0	16.4	17.7	8.8	8.7	100
1915	4.8	4.8	5.0	3.3	5.9	4.7	7.9	12.0	14.6	18.7	11.5	6.8	100
1916	5.3	2.5	3.6	3.6	5.1	4.8	8.4	17.7	24.4	11.8	7.6	5.2	100
1917	4.4	2.9	4.4	7.2	4.3	6.7	7.1	15.9	17.1	15.9	7.8	6.3	100
1918	5.0	3.6	3.8	4.9	6.6	6.0	10.5	17.3	24.5	9.1	4.6	4.1	100
1919	5.9	7.4	5.0	4.7	4.5	4.8	7.3	14.3	15.5	16.4	8.6	5.6	100

Confirmation by Widal Test

The results of the Widal test were given for 1,125 cases in 1918 and 1919. There were 1,039 positive and 86 negative results. Undoubtedly, more of the cases had the test done, and most of the 86 negative tests later proved to be positive after the epidemiological blank has been forwarded. Considering these figures alone, 92 per cent of the cases investigated had a positive Widal test, confirming the clinical diagnosis. The majority of cases in which the Widal test was lacking were in urban communities.

The number of cases on which a study of the age and sex could be based is greater than for other topics of discussion, for these data are given on the postal card reporting the case of typhoid fever. For comparative purposes the cases for the past three years are considered and there were 3,059 of 3,552 cases on which this information is available for 1917 to 1919 (Table III).

Age and Sex Groups

The striking effect produced by the immunization of men of the draft age in the army, that is in the 20-24 and 25-29 year groups, is clearly seen by comparing the 1917 figures with 1918 or 1919. In 1917 the largest number of cases occurred between the ages of 20-29, whereas in 1918 and 1919 the greatest age incidence was in the group from 10-19 years. Only seventeen persons were reported as having typhoid who had been given typhoid vaccine from one to four years previous to the onset of the disease. Considering the fact that in many cases the immunity conferred by inoculation is good for but one year, this is a very good showing.

The distribution of 3,534 cases in 1917, 1918, and 1919 between the sexes showed that males predominate markedly. In eighteen cases the sex was not given (Table IV).

The greater incidence of cases in the male group is apparently due to the greater opportunity offered for infection by the type and manner of occupation and carelessness in eating meals. In the younger age groups, the places and manner in which boys seek recreation, as in woods, swimming, and dumps, undoubtedly are a factor in the greater incidence of the male group.

In 1,308 cases the occupation was given, but the information is of little value except as it showed the great number of school children who had the disease, which would indicate that parents who have a history of typhoid fever should be considered as suspected carriers and should be investigated (Table V).

It is to be regretted that twenty-six nurses had typhoid during the two years and that only one had been inoculated with typhoid vaccine. It brings typhoid vaccine again to the front, for, if nurses were inoculated yearly, there would probably be no nurses ill with typhoid. Two nurses were proved to be carriers, one infecting a patient, and the other six persons through the agency of milk.

The nationality of the cases was furnished in 1,515 cases, distributed as shown in Table VI.

Fatality Rate Significant

The ratio of deaths reported in 1919 to cases reported was the lowest for several years, for only one died to each 9.1 cases reported, and the fatality rate is correspondingly low, as appears in Tables VII and VIII.

The high fatality rate of 1918 was apparently due to a certain number of typhoid cases being reported as influenza, rather than an increase in the virulence of the typhoid bacillus; for the high fatality rate existed during the months the influenza epidemic raged. Incidentally, the 1919 fatality rate is the lowest in the history of the disease in the state.

There were fewer cases reported in 1919 than any other year, establishing the record morbidity rate of 23.7 per one hundred thousand for Massachusetts. The seasonal distribution of these cases is set forth in Table IX.

As in previous years, more cases occurred in the late summer months. The total cases from August to October were 434, or 46 per cent of the total cases reported in 1918. The monthly distribution of cases based on the percentage of the total cases reported is shown in Table X.

The striking facts shown in this table are the small number of cases reported during October in 1918 as compared with other years, and the larger number of cases reported in July than in previous years. The small number of cases reported in October and November is due in part to the influenza epidemic, during which cases of typhoid were diagnosed as influenza because of the similarity of symptoms.

In 1919 the monthly incidence was the same as 1917 and earlier years, with the exception of January, February, and March, during which months an epidemic of thirty-eight cases occurred, due to water, which produced the slightly higher percentages for these months.

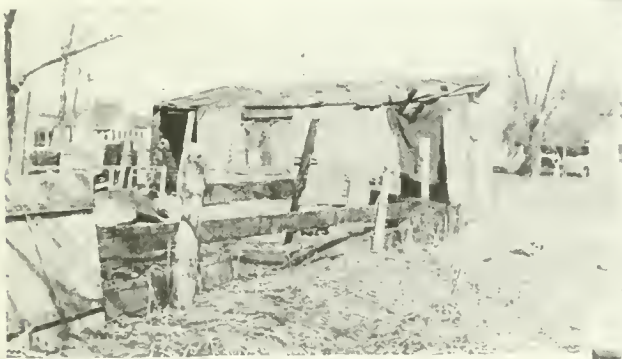
PUBLIC HEALTH WORK FOR RURAL DISTRICTS

By E. MARSH WILLIAMS, M.D., Director, Board of Health, Oskaloosa, Iowa

THE task of organizing a health district and planning work first along those lines in which a community seems measure by the character of the problems presented and

A condemned, typhoid contaminated well. The house is closed, all the family being in the county hospital with typhoid fever.

the funds available within the respective district or municipality; for example, that district located within an entirely agricultural part of the state, away from large cities and with many small towns, would have



Such structures as these are ordered out. Pig sheds and pens have no place in town.

very different problems from the district about a larger city or a manufacturing, shipping, or mining community. However, a general program can be outlined and modified to meet the various conditions presented.

It is necessary to use common sense and tact and work first along those lines in which a community seems to be most interested. Then the program may be extended as the campaign of education is carried on in accord with the outlined program:

In most districts and municipalities, the public school system offers the best field in which to begin the work. Later, the subject of sanitation, or both may be worked together. If it is decided to inaugurate an intensive campaign in some locality for three or six months, the following outline could be made:

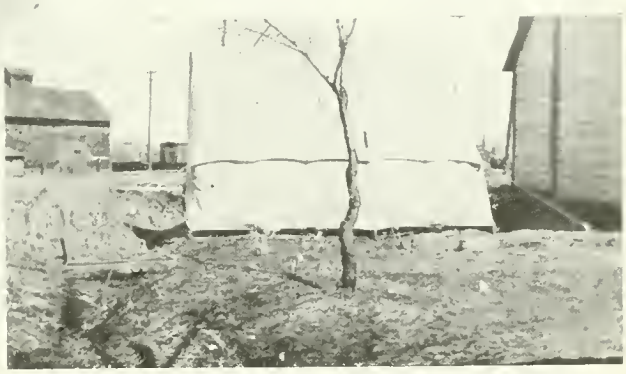
(1) Educational work, consisting of health talks, demonstrations, motion pictures, distribution of literature, home visitation, and organization of health centers.

(2) Water and soil pollution work, consisting of removal of condemned privies and cess pools or connection to drainage systems; the analysis of drinking waters and the study of drainage areas; the protection of water supplies and milk and dairy products; and the

The solution of a difficult problem. The reservoir of the water works plant of Oskaloosa, Ia., situated at the lower end of a ravine which drains a barnyard and pig pen three hundred yards to the left. In the lower left hand corner is a pig wallow which drains into the reservoir.

relations of polluted waters to water borne diseases.

(3) Vaccination and distribution of free vaccine, serum, and antitoxins.



The way Mohaska County, Ia., is taking care of her white plague patients.

Three bright prospects for the Nutrition Class. All under weight, and all gaining steadily under the right régime.

(4) The medical inspection of schools with follow-up to get the results of the inspection.

(5) An effort to coordinate all the public health agencies available in the community.

Such a program could not be undertaken until the organization of the working unit and the establishment or rental of a suitable laboratory is provided. If there is a laboratory in the district, either municipal or private, the cheaper way would be to arrange, if possible, to utilize it, at least for a time. However, with an outlay of from three hundred to five hundred dollars a serviceable laboratory can be installed.

As to securing a technician, the inspector or clerk could be taught to do much of the work, leaving the matter of diagnosis to the health officer. Such work as urinalyses, blood counts, gastric analyses, occult blood tests, and other simple analyses could be done for physicians and hospitals and thus stimulate an interest in the medical society for public health matters. A fee could be charged for the work for the upkeep of the laboratory. This would not necessarily interfere with the proper functions of the laboratory for public health work.

Constructive Work in Rural District

In outlining a program of constructive public health work in a rural district when little or nothing has been done, three principal points are to be considered: (1) The organization of the working unit; (2) the organization of all the available health agencies, and (3) the organization of the work as a program.

In the first step, there is a wide range of limits, depending upon the available funds for public health work. A liberal working unit in a district of twenty-five to thirty thousand inhabitants should include a health commissioner, three public health nurses, one of whom might be a general nurse, one a tuberculosis nurse, and one a school nurse, one clerk, and one laboratory technician. In the towns within the health districts it would be necessary to have a deputy health officer with perhaps a general nurse.

In considering the second step a real problem presents itself; for the health officer must not be too aggressive in his zeal for public health achievements, but with patience and tact and perseverance, must try to coordinate all the local health activities and bring them to a state of organization where they may be a part of the program of the working forces having a unified program of activities and team work. It would probably be advantageous to have a representative advisory council formed, to consist of one member chosen from each of the following organizations: the Red Cross, woman's club, commercial club, ministerial association, medical society, the Child Welfare Association, Child Labor Committee, the Board of Education and others. This Council, together with the nurses and health officer, should meet regularly to plan and arrange the activities of the sub-department of public health nursing in all its branches, because it is here that contact with the individual, with the family, and with the life of the community is made. The confidence and the cooperation of the people, together with the education of the public in health matters, is made possible through the activities of these available health organizations.

The hour for milk is enjoyed by this nutrition class more than recess.

In the consideration of the third step, begin with the real activities of public health. Just where to begin or what problem to attack is variable with conditions in different districts and municipalities. In general the best starting point is in the public school system, beginning with the inspection and health supervision of the school children, recording and using a follow-up system in all defective cases. The establishment of dental and medical clinics should be undertaken as the demand may warrant. Through the school work, the nurses work out into the homes and thus build up a field of tuberculosis work which can be followed up during the summer months, together with child welfare work. Health lectures and demonstrations should be given in the schools and the Parent-Teachers' Associations. There should be the establishment of warm school lunches, especially in rural schools, stimulation of Health Crusade work, sanitation, distribution of literature, free vaccination and antitoxins to the poor, and the study and control of communicable diseases.

The next division is the working program in sanitation. This field covers a multitude of sins and omissions. Here are two lines of work, one to remove hindrances to public

health, the other to replace with modern structures and methods,—things which will protect and aid the public health. These efforts should be directed along the lines of carrying out a definite intensive campaign in the rural towns and districts towards securing a safe water supply; the cleanly disposal of human excreta, barnyard drainage; the protection and care of milk supplies and products; the bedside control of communicable diseases; the elimination of cesspools and unsanitary privies, especially in the towns; the extension of the sewerage or water carrying system wherever possible; the installation of sanitary privies in rural districts; health education along the lines of prevention of water borne diseases or typhoid fever; the elimination of flies and other insects, and protection against them; an educational propaganda along sanitary lines and a familiarity with the rules and regulations of the State Board of Health and municipal ordinances.

In the rural towns, it is essential that the food supplies be guarded and all places where food and drinks are handled should be kept clean and protected from dirt and flies.

The laboratory should be utilized in the analysis of waters, foods, milk, and in any other way necessary to render aid in the diagnosis and prevention of communicable diseases.

After the first few months or year of getting organized and started, the second year should show the beginning of actual work. Then can be taken up surveys in various lines, *viz.:* water survey, sanitary survey, tuberculosis survey, child welfare survey, and such activities. From these plans further work may be formulated.

Outline or Program of Public Health for District or County Work

I.—Organization of working forces.
- A.—District or County Health Commissioner.
- B.—Public health nurses.
- C.—Inspector.
- D.—Clerk.
- E.—Municipal deputy health officers.
- F.—Advisory councils.
- G.—Local boards of health.
- H.—Establishment of public health laboratory.

II.—Coordination of all available Health Agencies.
- A.—City councils.
- B.—County commissioners.
- C.—Women's clubs.
- D.—Board of education.
- E.—Commercial clubs.
- F.—Medical societies.
- G.—Social service leagues.
- H.—Child welfare associations.
- I. —Red Cross.
- J. —Health crusaders.
- K.—Ministerial associations.
- L.—Home service leagues.

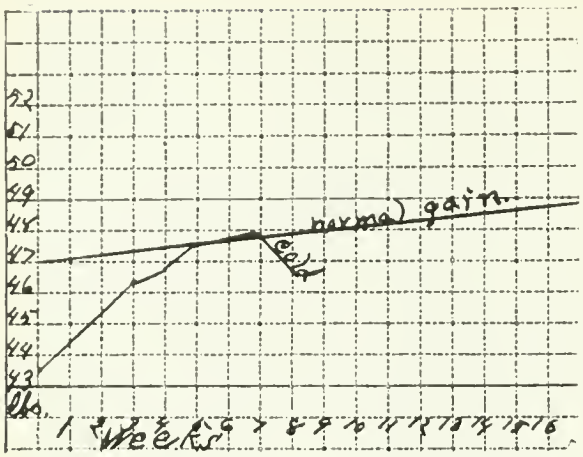
III.—Constructive Activities in Public Health.
- A.—Child Hygiene.
  1.—Inspection and health regulation of children's institutions.
  2.—Inspection and health regulation of charitable institutions.
  3.—Correction of physical defects.
  4.—Periodic inspection of schools.

"In with the New." Installing a new toilet. Some of the forces at work during clean-up week.

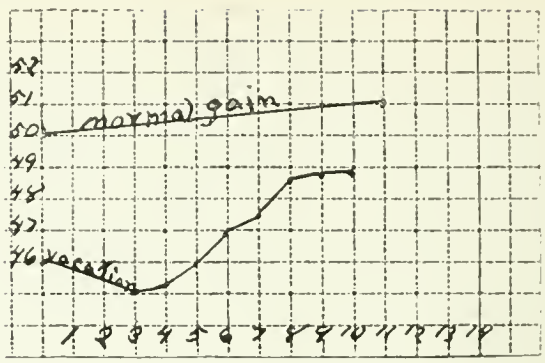
A well equipped County Public Health Laboratory.

The Park as it appeared after clean up week in Oskaloosa, Ia.

"Out with the Old" A type of toilet that must go.



The chart of Mary W., age 7 years, height 45 inches, weight 43.5 pounds.



The chart of Pauline S., age 7 years, weight 45 pounds, shows the marked and constant improvement achieved in nutritional work at Oskaloosa, Ia.

5.—Recording and classification of defects.
6.—Follow up work for defective cases.
7.—Treatment for (a) vision, (b) hearing, (c) nose and throat defects, (d) deformities, (e) skin, or (f) teeth.
8.—Vaccination.
9.—Isolation of infectious cases.
10.—Examination of nervous and mental cases.
11.—Special tubercular work.
12.—School lunches: (a) private and public support.
13.—Home instruction by: (a) health officers, (b) school nurses, (c) physicians, (d) school teachers, and (e) literature.
14.—Physical training by special instructors in: (a) athletics, and (b) gymnastics.
15.—School sanitation, including: (a) ventilation, (b) cleaning, (c) fumigating, (d) heat, (e) light, (f) toilets and sanitary privies, (g) drinking water, (h) suitable desks and seats, and (i) educational literature.

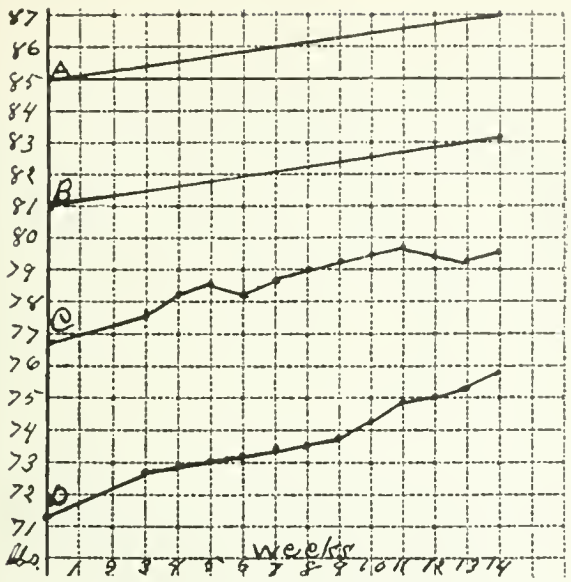
B.—Child labor.
1.—State regulation. (a) age, (b) hours, and (c) physical examinations.

C.—Communicable diseases.
1.—State and local regulations: (a) isolation, (b) quarantine, (c) release, (d) fumigation, and (e) vaccines and antitoxins.
2.—Tuberculosis survey: (a) laboratory work for dispensary for diagnosis and treatment, (b) follow-up work, (c) sanitation, (d) home treatment and supervision, (e) open air schools, and (f) food and rest.

D. General health measures.
1.—Water supplies, including: (a) surveys, (b) protection against pollution, (c) laboratory analysis, (d) municipal supplies, (e) wells and cisterns, (f) methods of purification, (g) regulation of public drinking places, (h) regulation of public baths and pools, (i) educational propaganda, (j) proper drainage and protection of water sources, and (k) study of water-borne diseases.
2.—Milk and milk products, including: (a) state regulations, (b) inspections, (c) laboratory examinations, (d) pasteurization, (e) refrigeration, (f) grading, (g) cattle testing, (h) sanitary handling, and (i) city ordinances.
3.—Foods: (a) state regulations, (b) supervision of: (1) slaughter houses, (2) factories, (3) bakeries, (4) markets, (5) restaurants, (6) produce houses and stores, (7) examination of food handlers, and (8) city ordinances.
4.—Sewerage and sanitation, including: (a) state regulations, (b) surveys, (c) proper sewerage disposal, (d) elimination of cess pools and privies in towns, (e) installation of sanitary privies in rural districts, (f) protection of public water ways, (g) minimum standards of pollution of water supplies, (h) purification methods, (i) rural sewage disposal, (j) municipal sewerage disposal, (k) relation of sewage disposal to disease, and (l) intensive campaign in municipalities and rural districts to secure: (1) safe water supply, (2) cleanly disposal of human excreta, (3) safe milk, (4) control of communicable diseases, (5) garbage disposal, (6) fly and insect control, (7) clean-up periods, and (8) improved methods of sanitation.
5.—Public health education to cover: (a) campaign of education, (b) schools of health, (c) schools of domestic science, (d) teachers of hygiene, (e) health centers, (f) lectures, (g) books, (h) magazines, (i) newspapers, (j) posters, (k) tracts, (l) leaflets, (m) motion pictures, and (n) demonstrations at public gatherings and social clubs.
6.—Rules and regulations: (a) national laws, (b) state rules and regulations, (c) municipal ordinances.

The first year's work would largely be taken up in the organization as outlined in Part I, and a beginning on Part II with some work in Part III.

The second year's work would cover parts of Section III and the third year's work would carry out in more



Group chart of Nutrition Class of eighty-six members. A—Graph of average normal weight and the gain of those who do not receive milk from the school. C—Graph of actual average weight and gain of those who do not receive milk from the school. B—Graph of average actual weight and gain of those who receive milk twice daily at school. D—Graph of average actual weight and gain of those who receive milk twice daily at school. Gain on an average for each child about three pounds, while those who did not receive milk at school gained only about one-half pounds on an average.

detail the work outlined in Part III. An estimate is given of the costs for the first year in a health district comprising twenty to thirty thousand inhabitants.

Liberal Budget Allowance

I.	Health Commissioner	$ 4,000
II.	Public Health Nurse	1,800
III.	School Nurse	1,500
IV.	Tuberculosis Nurse	1,800
V.	Inspector	1,200
VI.	Clerk	1,000
VII.	Laboratory Installation	500
	(a) Laboratory supplies	100
VIII.	Automobile	600
	(a) Car upkeep	100
IX.	Office Supplies	200
X.	Clinics	100
XI.	Hospitalization	200
XII.	Venereal Work	200
XIII.	Incidentals	100
		$13,400

Conservative Estimate

I.	Health Commissioner	$ 4,000
II.	Public Health Nurse	1,800
III.	Inspector	1,000
IV.	Clerk	1,000
V.	Laboratory and Installation	400
VI.	Automobile	600
	(a) Car upkeep	50
VII.	Office Supplies	200
VIII.	Venereal Work	100
		$ 9,150

In the organiztaion of a rural health campaign on this basis it is a part of the plan to secure from local health agencies and private sources funds for: (1) clinics, (2) food and supplies for sick, (3) hospitalization, and (4) tuberculosis work.

PREVENTING ANTHRAX

The Board of Health of New York has put into effect regulations requiring the sterilization of hair used in toilet articles, as a means of preventing anthrax. The regulation reads: "No person shall use in the manufacture of brushes or cloth, any animal hair which has not been sterilized by a process prescribed or approved by the Board of Health, nor shall any person bring into, or offer for sale, sell, or deliver in the City of New York, any brush or cloth containing animal hair unless the same shall have been sterilized.

"It shall be the duty of manufacturers of shaving brushes, tooth brushes, hair brushes, nail brushes, or other toilet brushes intended for human use, to cause his name or trade-mark, the place of manufacture, and the word 'sterilized' to be permanently, clearly and legibly painted or branded upon every such brush before offering for sale, selling or delivering the same in the City of New York."

INTERNATIONAL PUBLIC HEALTH

The opportune moment of the first meeting of the Medical Advisory Board of the League of Red Cross Societies has been utilized for the appearance of the first number of the *International Journal of Public Health.* This journal will be published bi-monthly by the League in four editions, English, French, Italian, and Spanish. Dr. Thomas R. Brown is the editor, with a staff of one associate and six assisting editors under him. The first three numbers are to be issued *gratis* in all parts of the world, but with the four issues in January, 1921, a subscription rate of $5 per year will be instituted.

The first issue contains as its leading original article an essay by Prof. A. Calmette on the protection of mankind against tuberculosis; part of a report by Dr. Richard P. Strong on the antityphus campaign in its bearing on Poland, and a statement by Dr. George C. Whipple on the world sanitation in the twentieth century.

COMPENSATION OF HEALTH OFFICERS

If health officers are to be adequately rewarded for the duties and responsibilities resting upon them, the education of the public with regard to the meaning of thorough public health work must be accelerated, according to Dr. John A. Ferrell of the International Health Board, Rockefeller Foundation, New York City.

In a survey reported in the July issue of the *American Journal of Public Health,* in State health work the compensation scale for the chief executive officers of health for the year 1919 ranged from $1,000 in Arizona to $10,000 in Pennsylvania. In the United States Public Health Service compensation of commissioned officers has recently been advanced from 15 to 30 per cent. In city health work, likewise, schedules have increased and numerous vacancies are announced in city health work and among private health agencies at salaries ranging from $2,500 to $7,500 per year. Although the compensation schedule for health officers has been too low, it has been steadily increasing year by year for the past ten years. The present shortage of qualified men indicates that the compensation schedule will continue to advance.

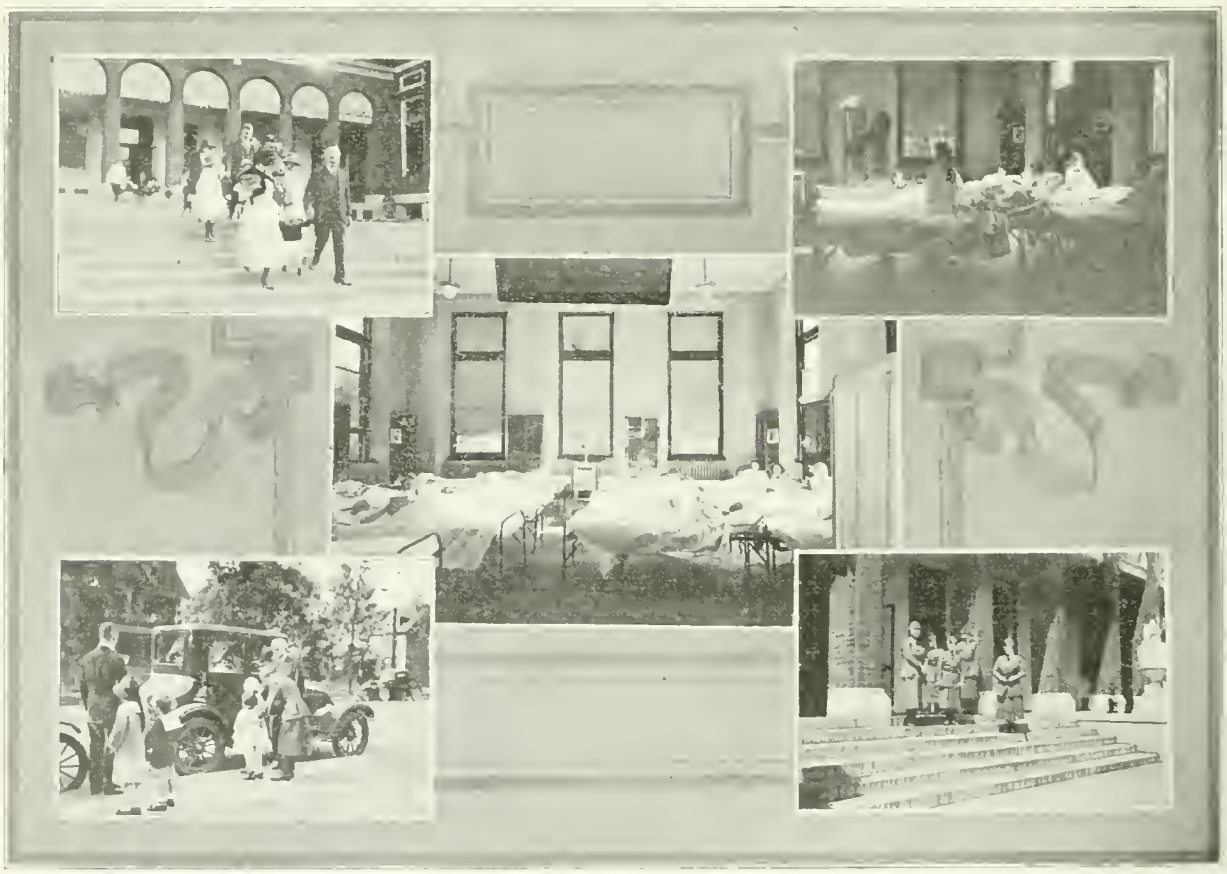
The associations of health officers should give direction to the movement, which has already gained tremendous momentum, by keeping the public informed regarding achievements in the prevention and control of disease, by interesting in special training those medical students, medical interns, and other persons who can be used in the work, and by giving guidance and support to institutions which are offering creditable courses in public health.

A TONSIL CLINIC AT ROCHESTER, N. Y.

THE Rochester Dental Dispensary opened an emergency clinic on July 26, 1920, for the removal of diseased tonsils and adenoids among the children of Rochester and Monroe counties, New York. This clinic was decided upon at the instance of Mr. George Eastman, who founded the dispensary some years ago. The dispensary was especially arranged for the handling of forty cases a day. Emergency rooms were equipped and special provision was made for the entertainment and care of the children. The cooperation of the city Department of Health, of the American Red Cross, and the various hospitals of the city made the campaign effective throughout the city and county. The children were transported to and from the dispensary by the Red Cross Ambulance Corps, who volunteered for the service.

The children were brought to the dispensary on the afternoon of the day before the operation. They received a physical examination and were entertained with motion pictures and music during the evening. In the morning the operations were performed and the children were transferred to the hospital wing specially fitted up for their reception, where they were kept until the following day. The receiving wards were far removed from the hospital wards, an arrangement which kept the incoming children from contact with any of the patients who had been operated. The dispensary made a charge of five dollars for the operation and for the care of the children, but even this small fee was remitted in the cases of children whose parents could not pay.

The surgical part of the work was performed by Drs. Edwin S. Ingersoll, Harry W. Edwards, Warren Woden, Ralph Honiss, Robert L. Iverson, and Leonard W. Jones. The house physicians were Drs. Walter D. Edwards and Richard A. Leonardo. The nursing service was directed by Mrs. Eleanor Spencer, head nurse at the dispensary.



Upper—Dr. Harvey J. Burkhart, director of Rochester Dental Dispensary, accompanying children to awaiting automobile when they leave for their homes.

Lower—Dr. Harvey J. Burkhart bidding farewell to tonsil and adenoid patients departing from the Dental Dispensary. The children are about to enter an automobile of the Motor Corps.

Center—Ward scene in Rochester Dental Dispensary, during the progress of the tonsil clinic

Upper—Ward scene at Rochester Dental Dispensary where the tonsil clinic is in progress. The little patients have been bathed and fed and now await the arrival of "Hospital Happiness" motion pictures.

Lower—Members of Woman's Motor Corps, Rochester Chapter, American Red Cross, who are transporting children to and from the tonsil clinic at the Rochester Dental Dispensary.

The Rochester Dental Dispensary has been under the charge of Dr. H. J. Burkhardt from its beginning. It has developed during the last year a clinic for the removal of diseased tonsils and adenoids and during the year on this service performed about twenty-five operations per week. The special clinic was deemed necessary to improve the situation. It is expected that fully fifteen hundred children will be operated upon during the clinic. Subsequent health work among these children will be noted with interest as no other city, so far as reported, has attempted so comprehensive a service of this kind.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M. OLMSTED, R. N., *Editor*

NATIONAL NURSING HEADQUARTERS ESTABLISHED

DELEGATES at the Atlanta Convention voted in favor of establishing headquarters for the three national nursing organizations—the American Nurses' Association, the League for Nursing Education, and the National Organization for Public Health Nursing. The necessity for such joint headquarters being established immediately was urged because of the need of a center for the recruiting campaign which the three organizations have undertaken, assisted by the American Red Cross.

Two offices have been leased at 156 Fifth Avenue, New York City, where the National Organization for Public Health Nursing is located, and it is probable that within the year branch offices will be opened, one in Chicago and one in the far West.

The notable and rapid development of the N. O. P. H. N. sets an encouraging precedent. In 1912 this organization was first established in an office with an executive secretary, Miss Ella Phillips Crandall, and now extends over the entire country, with branch offices in Cleveland and Chicago, and branch offices are planned for the far West and South. The personnel of its staff includes eleven full time nurse secretaries.

If organizations evolve in accordance with demand, a wonderful future for the joint Nursing Headquarters is assured. The Nursing Committee on Arrangements is composed of Miss Clara Noyes, president, American Nurses' Association; Miss Sara Parsons, Miss Mary Gardner, and Miss Anna Goodrich. Among the activities proposed are: a national recruiting campaign, a campaign to improve nursing education, and a central occupational clearing house for nursing credentials.

There is little doubt but that a recruiting campaign is badly needed. There is much doubt about the best methods of conducting such a campaign. Several methods have already been tried out, and it is with the greatest interest that we await the adoption by the National Recruiting Committee of a method of procedure.

Under the auspices of the Council of Defense a nation-wide recruiting effort was made during the war, as a result of which many more than the usual number of young women with high school and college education entered the schools for nurses. It is unfortunate that comparatively few of these recruits continued their training after the Armistice took away the thrill of possible war adventure.

The most unfortunate part of that campaign, however, was the fact that young women inquiring about nursing were referred to any or all accredited schools and, even though told what constitutes a good school, hundreds of them spent a few months in schools where living conditions were unbearable, where hours of duty were too long, and where they paid in drudgery a higher tuition fee than is paid by any other class of students anywhere. The result has been that in almost every school, club, or college where we now go to talk on "Nursing as a Profession," at least one young woman is present who enters wholeheartedly in the discussion, giving such true, vivid, and detrimental arguments against nursing as a profession, from her own or a near friend's actual experience, that the speaker finds little satisfaction in arguing that they were informed what constituted a good school.

Our lessons from campaigns of this kind should be that palliative relief for shortage in schools for nurses is possible, but is *pro tempore*, and the advantages are always greatly discounted by the harmful protestations from a dissatisfied public, if applicants are not more explicitly warned against the poor though sometimes accredited school.

We have learned another lesson concerning methods of preparing publicity. The Central Council for Nursing Education, with headquarters in Chicago, has been conducting a successful recruiting campaign for a group of very good schools for nurses in the central West. They are finding that because all of their publicity material is carefully prepared, printed on good paper, and put out in expensive, first class form, the recruits applying to the schools are of exceptionally good caliber.

Watch any magazine stand for a few hours and note the difference in the type of people which are attracted by and carry away the cheap, gaudily covered magazine as compared to those who select plain, but more dignified looking pamphlets. Dancing manikins may sell chewing gum, but there is nothing dignified in chewing gum.

All literature which is distributed about nursing should be prepared with the same regard for reputableness that usually characterizes announcements from educational institutions of a high order, and of the very select and distinctive commercial houses of recognized worth.

Cheaply prepared nursing leaflets can be thrown around; they are hard to give away, but costly. Literature, if carefully prepared, is not wasted. It is always kept, read, and passed on. Results are tripled in numbers and quality. One does not have to give it away, as the literature that is worth while may be sold at cost or even at a profit. From recent experience with the large sale of literature originally intended for free distribution by the Central Council for Nursing Education, the editor believes that the proper kind of nursing bul-

letins, posters, cards, blotters, or calendars can be printed and offered for sale by the National Nurses Recruiting Committee at a margin which would meet all expenses for the nation-wide campaign. A further advantage would be that literature could be sold to and used by only those schools coming up to a given educational standard.

The wholesale distribution of nursing literature, lectures, and information concerning all schools for nurses by the Joint Nursing Committee at this time would be synonymous with the ignorant hurried man who puts a thin coat of cheap varnish on the old rough painted table top without first smoothing down and improving the foundation.

A serious shortage of student nurses exists in almost every school for nurses. Hospital boards everywhere are eager to do what anyone tells them to do, in order to care for their patients and avoid cutting down the hospital income by having to close wards and floors because of lack of student nurses. If the three national nursing organizations which have so long fought for higher educational standards for nurses would come out strongly now for central schools and association of schools for nurses with educational institutions which would assume direct responsibility for the teaching, and if the joint organizations would recruit for only these schools, helping all desirable schools to secure proper affiliation, there would be a tremendous awakening on the part of hospital boards all over the country as to the futility of running hospitals wholly or in main by means of pupil nurses and giving them in return as little education as possible.

The increasing popularity of hospitals, the demand by the public for nurses trained far beyond the bedside nursing stage, the better remuneration and improved working conditions in other occupations, will soon make it obligatory that hospitals employ many more attendants or graduates, thereby becoming either training centers for bedside attendants or well conducted laboratories for the nurses in training.

We are thrilled by the possibility of what the concerted action of the three national nursing organizations, strongly backed by the American Red Cross, can do now, when opportunity knocks as it has never knocked before, when the time is ripe for a radical change from the present economically unsound system for both hospital and student, to a fundamentally sound and practical basis of education which will provide nurses for the world and prepare nurses for their unprecedented responsibilities.

It can be done now, but next year may be too late.

ORGANIZATION OF AN INDUSTRIAL NURSES' CLUB

By MRS. CARRIE B. CORRELL, Personnel Supervisor, The Cleveland Telephone Company, Cleveland, O.

IN attempting to organize any association, it is first essential to locate several people of similar interests who have constructive ideas. This small group of willing workers will form a nucleus around which can be builded an active organization.

Cleveland nurses engaged in industrial work were conscious of their need for exchange of ideas prior to the convention of the National Association which was held in Cleveland in May, 1918. Those who attended the various sessions of the Convention were stimulated to immediate action, and it is due to the incentive received at that time and to the untiring efforts of those most interested that the Industrial Nurses' Club of Cleveland is now in existence.

The Situation Surveyed

The week following the convention a group of eight nurses met to devise ways and means of reaching all graduate registered nurses engaged in industrial work, as a result of which conference a committee was appointed to make a survey of the city. Through the Red Cross Nursing Center, the Alumni Association, and telephone inquiry of large industries as to whether a nurse was employed by their organization effort was made by this committee to get in touch with all industrial nurses.

When a member of this Committee succeeded in reaching the nurse personally, she announced her own name and business connection then gave the information that a committee had been appointed to locate all graduate registered nurses who were engaged in industrial work. If she were one of this number, they stated their wish to extend to her an invitation to meet with them at an appointed time, the formal invitation being sent by mail, announcing the date and purpose of this meeting.

If she replied that she was a graduate nurse but not registered, the advantages of registration were presented to her, and an appeal made that she seriously consider taking the State Examination.

More than fifty nurses received invitations to attend this meeting, but only thirteen responded. However, we did not measure success in numerals, but by the manifestation of enthusiasm on the part of those present.

A chairman and committee were appointed to call a meeting in September, 1918, for the purpose of electing officers, outlining constitution and by-laws, deciding upon a suitable name for the club, the qualifications for membership, and dues.

This meeting was held September 10, 1918. Only those who were known to be Registered Nurses received an invitation to this meeting. The invitations were again given by telephone, effort being made in this way to convey a personal appeal. Thirty nurses responded. The members of this group are recorded as charter members. The object of this meeting was successfully carried out and the industrial Nurses' Club of Cleveland came in existence.

Two members assumed the responsibility of advancing sufficient funds to cover postage. Stationary and mimeographed invitations were donated by the firm where these nurses were employed. Application blanks were prepared by a firm employing another member. Three hundred copies of the constitution and by-laws were printed in booklet form, at a reduced rate, through the efforts of another member who is employed by a firm interested in printing.

The Dues Are Nominal

The small sum of one dollar initiation fee and one dollar yearly dues have been adequate to cover current expenses. It has not been necessary to rent an assembly hall, as we have been exceedingly fortunate in having the privilege of using an employees' rest room in a business house centrally located and very accessible. The most important details of organization can be briefly outlined.

The Aims of the Club

The aims of the club are best explained in Article II of the Constitution which reads as follows:

The object and purposes of this organization shall be:

Section 1. To discuss problems relating to the health and well being of workers in industry which come within the province of a nurse.

Section 2. To stimulate through the work of the Club, not only the enthusiasm of its members but the interest of the general public and especially of employers, to a fuller understanding of the value of the nurse's work in industry.

Section 3. To develop through discussion an efficient and practical standard for the nurse in industry, including the personal and professional qualifications of the nurse.

The result of adopting this article has been most gratifying. The discussion of industrial problems and nursing standards have been very beneficial. It is the aim of the Club to assist in every possible manner to maintain the very highest nursing standards. We have had frequent and intense discussion on the subject of State Registration as one of our requirements for membership. We still feel that the standards as required for State Registration are none too high and our Membership Committee continue to request each applicant to present her certificate to a member of this Committee before her name is proposed for membership.

Club Makes Annual Report

The Annual Report of the Club as presented to its members at the annual meeting which was held in January, 1920, makes this statement as to the Club's benefit to nurses.

It is with considerable satisfaction that I give to you the report of the Club's activities and progress for the year 1919.

From a membership of thirty charter members at its organization in September, 1918, we now register a membership of fifty-two. A recent survey of the city shows there are eighty-six (86) nurses engaged in industry in Cleveland.

In presenting the activities of the Club for purposes of record, the three months of 1918 are included in this report.

With the exception of August, 1919, monthly meetings have been held regularly on the second Tuesday of each month. The first monthly meeting was held in September, 1918. Officers were elected and general outlines of the constitution and by-laws were discussed. The present attractive Constitution and By-Laws are the result.

The detail of organization naturally consumed a great deal of time but has not excluded the fundamental motive for its existence, which may be generally stated as educational in purpose.

The following list of topics and speakers has been presented at the fifteen meetings to date:

Importance of the Nurse's Work in Industry—Dr. A. F. Voak, of the National Acme Company.

Industrial Work and State Compensation—Mr. Wilson and Mr. Maloney, of the State Industrial Commission.

Lakeside Unit in France—Miss Allison, Former Chief Nurse of Base Hospital No. 4.

Home Economics and Family Budgeting—Mrs. Lapp and Mr. Lincoln, Society for Savings Bank.

Outline of Public Health Course—Miss Evans, instructor, School of Applied Social Science, Western Reserve University.

Red Cross Community Teaching—Miss Hanson, director of Red Cross Teaching Center.

Industrial Dietetics—Miss Ramsburg, graduate dietitian, Royal Baking Powder Company.

Industrial Health and Means of Combatting Influenza—Dr. H. L. Rockwood, City Commissioner of Health.

The Opportunities of Physician and Nurse in Industry—Dr. Davis, Standard Parts Company.

The program for the remainder of the meetings was in the form of round table talks presided over by a club member. Topics of general interest have been discussed with benefit and satisfaction to those present.

Twenty-seven club members responded to the cordial invitation of the employment managers group of the Cleveland Chamber of Commerce to attend a banquet at the Chamber of Commerce. Mrs. Alice Gitchell Kirk addressed the meeting on industrial dietetics.

The July meeting was held in the form of a picnic at Edgewater Park. The September meeting as a banquet at Shore Acres Club.

An interesting feature of the Club's work was the letter sent to more than a hundred general managers of Cleveland's large industries informing them of the existence of the Club and its objects. Many responses of interest and approval were received.

Several reports of adverse criticism were received during the year which, of course, means a certain form of interest and invariably an invitation to investigate the object of the Club. As a group of intelligent business women, we can safely adopt the motto that "Every knock is a boost," and cheerfully accept criticism.

The Woman's Industrial Club, affiliated with the Young Women's Christian Association, had extended an urgent invitation that we use their club rooms, and this invitation was accepted for two meetings, but for various reasons this arrangement was unsatisfactory and, through the courtesy of the Cleveland Telephone Company, meetings have been held in one of the class rooms of their training school.

We are now about to make another step forward. The Committee on New Nursing Center of Cleveland have included the Industrial Nurses Club in the group of progressive nursing activities, and have asked that we hereafter be affiliated with the New Center and hold our meetings at that place. They, in their outline, propose that two members of this Club be on the Advisory Council of the New Nursing Center.

The report, as given, represents untiring effort on the part of those who have served on committees and we owe them a debt of appreciation, more especially because of the fact that all members of this Club are occupying positions of large responsibilities, and their hours of leisure are few. It is, therefore, a foregone conclusion that this Club is now in existence because of their efforts, which were given cheerfully and at a personal sacrifice.

Since this report was submitted, we have had the pleasure of hearing Mrs. Anna Staebler address the Club on the work of the New England Industrial Nurses Club.

Mr. Lintz of the National Safety Council gave an address on "Accident Prevention," and Dr. Ward of the Parke Davis Company gave an interesting stereopticon lecture on preparation and use of vaccine and serum.

Talks Have Educational Value

The program of interesting subjects provided for the various meetings are self-explanatory as to their educational value. The round table talks have been most valuable in the opportunity offered for the exchange of ideas and ideals. They have been an inspiration for advancement in the industrial field as well as to promote general nursing interests and standards. Many members have expressed their regret that more of the meetings have not been given to round table work, but this has not been

possible, as the Program Committee has found it difficult to accommodate speakers who have requested the privilege of addressing the Association.

As a Club and as individuals, we fully appreciate the benefits we have derived from closer association made possible through organization. We also believe that any organ which is beneficial to a special branch of nursing must also be of value to the profession as a whole.

The Club's Benefit to Employers

One of the big problems of the business world today is how to devise ways and means of increasing production and efficiency. We who are in daily contact with business activities fully appreciate that production is only possible through increasing the efficiency of the individual employee. We also know that efficiency depends largely upon their mental and physical well being, vastly more so than upon their natural ability.

As a result of this realization employers of large numbers of people have introduced the trained nurse into their industries. Primarily, it was supposed that nurses were only qualified to do first aid work in industrial dispensaries. However, the four walls of a dispensary could not confine the progressive nurse, and she soon proved her value to employers. As a result, nurses are now filling important industrial positions, in many instances having full charge of health, sanitation, employment, and general supervision of personnel.

It is therefore essential that she be a trained nurse with broad experience, plus tact and business ability, and that she constantly increase her store of knowledge in order to be able to cope with the various medical and sociological conditions which present themselves from time to time.

Industry is demanding of its executives, heads, and subheads of departments, a broader knowledge of their own particular branch of work. Resulting from this demand we find department head meetings, special conferences, conventions. Department heads as well as industrial nurses must realize the importance of similar conferences for the industrial nurse on subjects pertaining to the health and well being of their employees. A well organized industrial nurses' club will meet this need.

Help in Selection of Nurses

Many Cleveland employers are appealing to club members for help through the Club, that they may make no mistake in selecting a nurse for their industry. The Club representation at this convention is additional proof that they have recognized the benefit of our Club to employers.

We need first to consider the importance of the trained nurse in industry. As already stated, she was primarily employed for first aid work in industrial dispensaries. It is quite possible that the motive for employing a nurse was 99 per cent monetary and 1 per cent humanitarian. Regardless of the motive, the well trained nurse who wishes to serve humanity has an unlimited field in industry. Her value and her opportunities cannot be measured.

She must possess tact and an understanding of human ills, both mental and physical. Her personality must be such as will qualify her to meet people in all stations of life. She must be as ready to advise the foreign laborer as the highest executive in the organization, or *vice versa*. She should have a broad experience in her own profession, and additional training or experience in public health or social service work.

A large majority of industries employ physicians on a part time basis only, while the nurse is a full time employee. It is her duty to observe the general health of the employees, to recognize abnormal appearance, and working conditions. We all know the value of recognizing early symptoms. We know, also, that illness and general poor living habits are frequently the underlying causes of accident. It therefore becomes imperative that the industrial nurse take advantage of every opportunity to instruct in personal hygiene, thereby contributing her share to accident prevention.

The industrial nurse must be ever on the alert to recognize social problems which frequently present themselves under the guise of illness. In order to keep well informed on all subjects pertaining to her work it is necessary that she meet at intervals with those who are engaged in similar work. Discussion of the various phases of the work and their individual problems are of mutual benefit. With the enormous responsibilities of the industrial nurse, the opportunity to instruct employees along lines of wholesome living, the employees in turn giving to their families the knowledge which they have obtained, one can readily comprehend the necessity for constant study as a means of broadening her scope of knowledge through every available source. She will in this manner fulfill the highest ideal of her profession, "Service to Humanity."

DENTAL CLINICS ARE SUCCESSFUL

Dental clinics are being conducted by the Oral Hygiene Committee of the Minnesota State Dental Association in conjunction with the Minnesota Public Health Association, representing nearly every county in the State. They are held independently or with the pediatric, ophthalmic, tuberculosis, and psychiatric clinics. They are financed by the sale of Red Cross seals.

Dr. W. H. Card, chairman of Oral Hygiene Committee, writes: "It might interest you to know that since November last we have conducted about sixty-five clinics, in about thirty-five counties, at which more than twelve thousand children from five to fifteen years of age have been examined. These are demonstration clinics in which examinations are made of the children, advice is given to the parents on the care of the mouth, importance of six-year molars, how to prevent decay, irregularities, etc. In all cases children are referred to their local dentists for any reparative treatment necessary. Usually at each clinic there is arranged a lantern slide lecture to which are invited parents, teachers, and high school students. Sorry I haven't more time so that I might go into detail about our oral hygiene work, but from letters we have received, and comments we hear, we believe we have done a great deal of good in the short time we have conducted our clinics.

"The nurse, no matter what branch of her profession she may follow, on account of her close relation with the patient, can do much to spread the Gospel of Oral Hygiene, and impress upon the patient the close relation of teeth to health. A wonderful field is open for the dental nurse in public health work, especially institutional work."

WHAT MAN IS MADE OF

According to the *Minnesota Public Health Association Journal*, the average man contains the constituents found in 1,200 eggs, has iron enough to make four tenpenny nails, fat contents to make seventy-five candles and a good sized piece of soap, not to speak of a bowl of sugar. Considering that eggs are selling for 95 cents a dozen, matches at 6 cents a box, and candles for 5 cents each, $582.84 is the actual worth of the constituents of a grown person, to say nothing of what the sugar he contains may be worth.

THE RELATIONSHIP OF RURAL RECREATION AND THE PUBLIC HEALTH NURSES

By E. C. LINDEMAN, Chairman of the Committee on Recreation, American Country Life Association

THERE are two distinct schools of thought in the American country life movement. The "economic" school believes that rural life will be satisfactory when a sufficient economic reward is assured to the farmer for his labor. The "social" school insists that mere economic success will not assure social success; that material progress, when separated from social and spiritual progress,

"Going to the Show!" is the modern American slogan. And going to the show now means sitting lazily in a half lighted room while highly emotional scenes of the unreal phases of life pass before the sight and make their impression.

does not produce a contented and constructive population.

The public health nurse is now an integral part of the American country life movement. There are approximately four hundred public health nurses now functioning in rural areas. What impetus will these new professional leaders give to the country life movement? Will they emphasize health *per se*, or will they see health in its relationship to the whole of life? Are they to promote the "particularist" or the "social" viewpoint?

The answer to these questions is vitally important. If we are to go on with each agency and each school of thought laying stress upon its program as the sole solution of the country life problem, there can be only one result, namely, confusion and lack of real progress. The American Country Life Association was organized for the primary purpose of presenting a united front of progress. It does not overlook the necessity of a sound economic basis for agriculture; it holds, however, that the economic well being must be supplemented by education, health, recreation—those elements of life which need to be added to material existence in order to distinguish man from animal.

This Association is organized on the basis of standing committees, each of which has a particular phase of country life for its intensive study. The author is associated with the Committee on Recreation, and it is in this relationship that this article appears.

What Is Public Health?

Before a statement regarding the relationship between recreation and the public health nurse can be justly made it is essential that the full implications of public health be reiterated and stressed. There is perhaps no more adequate definition of public health than that proposed by Dr. C.-E. A. Winslow of the Yale School of Medicine.

Public health is the science and art of preventing disease, prolonging life, and promoting physical health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health.

This definition includes two functions of public health organization which have a bearing upon the problem of this paper. If public health is to "prevent disease, prolong life" and "insure to every individual in the community a standard of living adequate for the maintenance of health," it must certainly include within its scope those activities which achieve these ends. The difficulty in including recreation as a prerequisite to or as an integral part of the public health program arises through the lack of correlation between the physical and the social sciences. When some advocate of the so-called "new public health" writes a book in which he says: "A bullet will travel equally as far through the soldier who is physically perfect as through him who is a physical wreck," it confuses the social scientist.

The Rural Community has this recreational advantage: There are abundant places to play. The utilization of these rural community resources awaits only an awakened and earnest leadership.

Folk dancing utilizes the finer accessory muscles. It co-ordinates muscles with the nervous system. Rural children need this particular type of recreation because farm work over-develops the major muscles.

However, the correlation between the physical sciences and the social sciences must be made, else science itself will be placed in an absurd position. And Dr. Winslow, in his definition of public health, leaves room for the sociologist and the economist to add his contribution.

Equally important is it to have a clearly defined idea of the nature and the purpose of recreation in life. In the broadest possible sense, any activity which a person will continue to engage in without hope of pecuniary reward may be called recreation. A more specific definition of recreation might be stated in this form: Recreation combines those activities of life which are physically energizing and joy-producing. Mere exercise is not play, as every farm boy and girl knows full well. Play is spontaneous expression of the fullness of life.

Constructive recreation:

(1) Is physically energizing. It rejuvenates the muscles.

(2) Promotes mental alertness. It develops the sense perceptions.

(3) Promotes sociability. People who play constructively love their fellow men.

(4) Is joy-producing. Play is the natural antidote for melancholy and sorrow.

(5) Makes good behavior habitual. Behavior is translated in terms of muscle-action through play.

The Problem of Rural Recreation

Why do the people of the open country need a recreational program of activities? They have the open air, the fresh food, and the wholesome work of the farm. Despite all of these apparent advantages, the fact that the rural people are not superior in health to city people is well known. It is needless to recapitulate here the numerous studies which bear out this statement. The important consideration for the public health nurse is: What are the deficiencies of country life? And how are these deficiencies related to health?

Farm work and farm life in general presents the following issues: (1) The ordinary work of the farm develops the major muscles but does not develop the finer or accessory muscles. In order to secure symmetrical development there must be a supplementary regimen of recreational activities which will utilize the finer muscles. (2) There are certain forms of farm labor, usually carried on by women and children, such as cotton picking, beet weeding, onion weeding, *et cetera*, which are not merely inimical to symmetrical bodily development but which are actually deleterious to health. (3) There is a lack of sociability or opportunity for sociableness in country life which tends to develop a somber or non-optimistic outlook on life. A sociable use of leisure hours is the only feasible corrective.[1]

Our larger cities are no longer negligent in providing recreational advantages. The playground movement has been peculiarly a city movement. The same public opinion for recreation does not exist in the open country. The reasons for this are:

(1) The play movement has not been carried to country people.

(2) Country people do not understand the function and purpose of play in modern life.

(3) The agencies promoting play in the country have been largely institutional in their approach.

(4) The normal play groups in rural communities are often too small to encourage group recreation.

(5) Country children have been too often regarded as economic assets to the farm.

(6) Country people have assumed a lack of leisure time.

(7) The cheaper forms of amusement of the city have been at work in rural communities destroying the taste for constructive, purposeful recreation.

All of the above may act as a discouragement to the public health nurse or rural leader who sees the need of recreation. It should serve in the opposite direction; it should act as a mighty challenge; for there are advantages in country life which cannot be matched by the life of the city. Farm life builds a foundation for physical health in the major muscles; the rural family has not suffered as much disintegration as the city family; the leisure hours of country people are not consumed by multitudinous activities; commercialized amusements have not yet obliterated the taste for wholesome recreation; and, finally, the children of our Nation are there. In spite of the increasing disproportion between rural and city populations, the country still remains the seed bed of our population. Nearly two-thirds of our children live

"Man is Whole Only When He Plays." When men and women stop playing they have lost the zest in life. Rural recreation should be planned to interest the old as well as the young.

[1]For a fuller discussion of this and other phases of the problem of rural recreation see "Recreation and Rural Health," second annual proceedings of the American Country Life Association.

The seven children in this family do not live in the slum district of a large city. This picture was taken in a small rural village. Every member of this family is diseased or has prominent physical defects.

in villages and towns which are rural or in the open country.

The Recreation the Country Needs

On the basis of years of observation and experience the author ventures to state some of the characteristics of good recreation for the rural population.

1. Games used should be *safe for health*. This does not mean that they are not to involve physical risks; it does mean that they must be games which do not involve unnecessary heart strain and which may be played under hygienic conditions.
2. Types of recreation in which old as well as young people may take part should be encouraged. The country community is made up of family units.
3. Types of recreation suitable to both sexes should be utilized, for the same reason as stated above.
4. Types of recreation requiring a minimum of equipment should be encouraged. Expensive play equipment is not essential to a constructive recreational program.
5. Games which develop cooperative action should be used.
6. Types of recreation adapted to large numbers as well as small numbers should be used.
7. Types of recreation should be encouraged that will serve to offset some of the deficiencies of country life enumerated in the earlier part of this article.
8. Every rural gathering should be regarded as an opportunity for promoting right types of recreation.

Aids to the Public Health Nurse

There are grounds for believing that the public health nurse stands in a strategic position in regard to the rural recreation movement. She is not using recreation merely to build up an institution. She is sincerely interested in the well being of the people with whom she serves. She has a fundamentally sound reason for promoting recreation, for it is through her that mental and physical health is to be democratized. It is not to be expected that the public health nurse is to become the recreational supervisor for her county or community. She is, rather, to be the initiator, the teacher, the social worker who sees recreation as a part of the whole of a well ordered life. With such a viewpoint she may exercise a far reaching influence on the issues of rural recreation through activities such as:

(1) Nutrition clinics where certain physical defects are revealed.

(2) Medical examinations where further physical defects are revealed.

(3) Detection of processes of degeneration due to improper use of leisure hours.

(4) Promoting respect for the human body through the play ideal.

(5) Supplementing farm life with those activities that will invigorate and enthuse as well as correct deficiencies.

(6) Demonstrating play activities as correctives and as a part of preventive medicine.

In this manner the public health nurse renders the greatest possible service, in that she demonstrates the real need for recreation. If we have sufficient faith in people we may be assured that when a vital need is effectively demonstrated, means for meeting the need will be devised. When this point has been reached, the public health nurse may act as the social engineer who assists in constructing the machinery which will provide wholesome and adequate recreation for each community in which she functions.*

REPORT OF WORK FOR THE HANDICAPPED

A report of three years of work for handicapped men by the Institute of Crippled and Disabled Men of New York City has just been published. This report gives a brief summary of the work of the Institute, including its medical work and the different kinds of vocational training offered by the Institute. The Institute has had considerable experience in rehabilitation and the report of its three years pioneer work should be read by all who are interested in this new humanitarian work. The Institute has not limited its activities to vocational education but has taken the word "Rehabilitation" to mean "The use of suitable means for rendering a disabled person again fit to earn his living."

HEADACHE AS A DANGER SIGNAL

The *New York Times* quotes at length from an article by Dr. A. E. Herr of Cleveland in the *Western Medical Times* on "Headache as a Danger Signal." "Headaches are useful," said Dr. Herr. "They are only the red flags hung out as a sign that some organ is functioning abnormally. They are not diseases but always symptoms. A headache has virtue because it leads you to search out the causative factor. It is not an enemy, but a friend."

Dr. Herr takes the position that the majority of headaches are of that class which have their genesis in wrong living and wrong habits; so that in the great preponderance of instances a mere correction of the irregularity will relieve the headache.

"Considerable can be learned as to the source of the trouble by its relative location in the head," he writes. "For instance, the majority of people are aware that an ache in the forehead is usually due to disorder of the stomach or bowels, but if situated to one side in the region of the temples and coming on more or less periodically, it indicates some error in refraction which can be corrected by the wearing of a proper lens."

*For concrete directions for games, organization, *et cetera*, see Bulletin prepared by the author for the American Red Cross. This may be obtained through Mr. E. L. Morgan of the Rural Service Division, National Headquarters.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

CONSULTATIVE COUNCIL ON MEDICAL AND ALLIED SERVICES

THE Consultative Council of the Ministry of Health has issued recently an interim report on the future provision of medical and allied services. Dr. Addison, the minister of Health, in October last requested the Council to consider and make recommendations as to the scheme or schemes requisite for the systematized provision of such forms of medical and allied services as should, in the opinion of the Council, be available for the inhabitants of a given area. This interim report sets forth the trend of the Council's deliberations and conclusions and provides highly suggestive, interesting, and instructive reading. Emphasis is laid, in the first place, on the fact that the changes advised in the report are rendered necessary because the organization of medicine has become insufficient and because it fails to bring the advantages of medical knowledge adequately within reach of the people. It is pointed out, what is quite obvious, that preventive and curative medicine cannot be separated on any sound principle and in any scheme of medical services must be brought together in close coordination. Also, and this is a very important point, they must be brought within the sphere of the general practitioner.

The services are classified into those which are domiciliary as distinct from those which are institutional, and those which are individual as distinct from those which are communal. The domiciliary services,—those of the doctor, dentist, pharmacist, nurse, midwife, and health visitor,—constitute the periphery of the scheme, the remainder of which is mainly institutional in character. The health centers which are suggested and which are the main props of the scheme are institutions wherein are brought together various medical services, preventive and curative, so as to form an organization.

Health centers may be either primary or secondary, the former denoting a more simple, and the latter a more specialized service. The primary health centers are institutions equipped for services of curative and preventive medicine to be conducted by the general practitioner of that district, in conjunction with an efficient nursing service and with the aid of visiting consultants and specialists. Primary health centers would vary in their size and complexity according to local needs, and as to their situation in town or country; but they would for the most part be staffed by the general practitioners of their district, the patients retaining the services of their own doctors. The distinguishing feature of the primary health centers in contradistinction to secondary health centers would be that they would be staffed by general practitioners. Hospital facilities would be provided; there would be wards of varying sizes, and for varying purposes, including provision for midwifery. The increasing employment of open air treatment of illness would be provided for. Clinics would be equipped where doctors could see their patients and consult with one another. The primary center would be the home of the health organization and of the intellectual life of the doctors of that unit. Those doctors, instead of being isolated as now from each other, would be brought together and into contact with consultants and specialists; there would develop an intellectual traffic and a *cameraderie* to the great advantage of that service.

Secondary health centers must be situated in towns where an adequate equipment, an efficient staff of consultants and specialists, and the necessary means of communication can exist. The services of the secondary centers would be mainly of a consultative nature. The centers would receive cases referred to them by the primary centers, either on account of difficulties of diagnosis or because in their diagnosis or treatment a highly specialized equipment was needful. On the other hand, primary centers would ease the work of the secondary centers by treating less complex cases which are now sent to the larger hospitals, and by receiving patients from the secondary centers when the acute stage of their illness had passed. A secondary health center should be completely equipped, since on the excellence of its service and organization the efficiency of the primary health centers and domiciliary services based upon it would, to a large extent, depend. Secondary health centers should in turn be brought into relation with a teaching hospital having a medical school. This is desirable, (1) in the interests of the individual patient, that difficult cases may have the advantages of the highest skill available; and (2) in the interests of the medical men attached to the primary and secondary centers, that they may have the opportunity to follow the later stages of an illness in which they have been concerned at the beginning, to make themselves acquainted with the treatment adopted, and to appreciate the needs of a patient after his return to his home.

The drawers up of the report state underlying their recommendations is the dominant purpose of providing the best services for the health of the people. Their recommendations are designed to secure: (1) Provision of

buildings and equipment. (2) Services suitably correlated and available for all. (3) Opportunity for the best work and the furtherance of knowledge. (4) Coordination of preventive and curative medicine. (5) Freedom of action for doctor and patient. Under existing conditions doctors are frequently without such provision or opportunity; they have imperfect access to such resources as those of bacteriology, biochemistry, radiology, electrotherapeutics; and they have inadequate means of assistance from consultants or specialists. Consequently they cannot always do justice to their patients or themselves.

The scheme outlined is bold, ambitious, and widely comprehensive in its scope. Some may and have called it Utopian, but a more fitting term by far is idealistic. It is not so impractical as it appears on first consideration. The character of medical practice is changing. It is now, or will be in the not far distant future, preventive rather than curative and the scheme is in keeping with the change. Further, the principal, indeed the only means for preventing disease on a large scale is early diagnosis, and it has been but recently recognized that the general practitioner is the sole individual who has the opportunity for this kind of research. Hitherto the means for undertaking work of this character have been denied him. The establishment of primary health centers will remedy this state of affairs. The cost need not be so staggering as at first sight it seems it must be. Organization and coordination will do much to render the cost of establishing primary health centers not too oppressive. The secondary centers need not be established at first. If the scheme of the primary health centers is efficiently carried out, it will be for the good of the individual and public health, and of the medical man. By the mere publication of the Report the Council has done the cause of health an inestimable service. It has stimulated the imagination and should incite those interested in such matters in all civilized countries to healthy emulation.

LONDON CORRESPONDENT.

MENTAL DISORDERS AND VOCATIONAL RE-EDUCATION

BY EUGENE N. BOUDREAU, RECENTLY ACTING ASSISTANT SURGEON, UNITED STATES PUBLIC HEALTH SERVICE, NEURO-PSYCHIATRIST, FEDERAL BOARD FOR VOCATIONAL EDUCATION, DISTRICT NO. 2, NEW YORK, SYRACUSE, N. Y.

IN the past two decades much progress has been made, especially in America, in the study and understanding of mental disorders. Increase in knowledge and interest have fortunately done much to improve the public attitude towards unfortunate persons whom life has afflicted with these maladies. In addition the knowledge gained through recent work, clinical and laboratory, in psychiatry and psychology was immediately practical when the war developed and it became apparent that mental and functional nervous disorders would constitute a medico-military problem of the first magnitude. Yet it took England and France some time to develop a method of handling the situations which arose from placing too great a burden upon constitutions not sufficiently endowed mentally to bear it. Both of these nations had some unhappy experiences and found that shooting was not a cure for epidemics of war neurosis.

All Nations Unprepared

Dr. McCarthy, the Philadelphia neurologist, says that the Germans also were entirely unprepared for the multitudes of war neuroses in the early period of the war. Their inelastic minds and inelastic system were still groping with the problem unsuccessfully when, while on a mission from the United States government just preceding our entry into the war, he had the opportunity of observing Germany's war machine. America was more fortunate because in this field she had the experience of the other belligerents to build upon. Here, as rapidly as possible after war was declared, a force of neuropsychiatrists was marshalled; some were sent to England to learn at first hand the practical methods of managing the problems there; others were assigned to keep an expert eye upon the officers' training camps, and, finally, complete boards were placed in each cantonment to eliminate as many as possible of those unsuited to meet war at close range. At the same time an organization was being developed to cope with the situation in Europe when our troops entered the combat actively. Thus, within a year from our declaration of war, there was in France a trained neuropsychiatrist with every tactical division sent overseas, one or more at every hospital center, and a chain of neurological hospitals reaching from the triages at the firing line, where the division specialist functioned, to the base port, where the unrecovered cases were finally evacuated to the United States. Each one of these stations acted as a valve or perhaps better a sieve the chief function of which was to save as many of these cases as possible for active combat. But the operations before Chateau Thierry found the system too undeveloped to dam the flood of nervous soldiers which in every army and in every action flows backward from the firing line. The result was that four thousand cases of reported "shell shock," 10 per cent of the total casualties, had been scattered like feathers before a wind to the already over-burdened general hospital system when that initial battle was ended.

The Prejudice Against Psychiatry

It will never be generally known what prejudice against neuropsychiatry each specialist had to overcome among old-time military men of the line and medical officers new to the demands of modern warfare; but be it said to the credit of both, and the force organized by Col. Pearce Bailey and Col. Thomas W. Salmon, the first working at home and the latter in the American Expeditionary Force, that, when the armistice was signed there was unanimous cooperation from all and this had become one of the most firmly established and best trusted special organizations.

In the St. Mihiel and Argonne offensives there was no repetition of Chateau Thierry. The special machinery was then fully organized and working smoothly so that 90 per cent of the neuroses cases reaching the triages were returned to combat from the various stations along the way back to Base Hospital 117. Only 10 per cent reached the base port for return to the United States. In

all, from the first days of training until the final evacuation of France by American troops, less than three thousand cases of functional nervous diseases were sent home for further treatment or discharge for disability. After the armistice the system was extended and followed the Third Army into Germany under the direction of Dr. Samuel W. Hamilton, Consultant in Neuropsychiatry for the Army of Occupation. Centers were established at Coblenz and Trier to work in conjunction with the division psychiatrists and to handle cases that could not be handled in the division hospitals. These units remained in Germany as long as troops remained in any numbers. As rapidly as possible neurologists trained in France were returned to give the advantage of their experience in the after-care of these more unfortunate soldiers who were and are still in the hospitals of the United States. On their way to the United States these experts had charge of convoys of mental cases, thus insuring expert supervision of the care of mental and nervous cases until the home ports were actually reached. Therefore, from the time of his entrance into the Army until his discharge our soldier had available the knowledge gained through the past two decades of mental research.

Care for the Mentally Wounded

Now what is being done for our mentally wounded soldier since his discharge from the army? Are there many such who are now handicapped for the new battle that against changed conditions which are a test of strength for the most normal man discharged from that army of four million? What can be done for them? What agencies are working to discharge our debt to this class of wounded men? Whatever be the attitude toward some or of all such men, it is more than certain that had not Germany menaced the safety of our American birthright and had not these men been removed from the security of a manageable environment, they would not now be mentally incapacitated. Our duty is therefore clear. As to the number of such cases, no adequate estimate can be made. We have definite information only of those whose endowment was so overtaxed that they are now in hospitals, forever incapable of helping themselves because suffering from incurable psychoses. This discussion is not especially concerned with these. It is with those who temporarily broke down and who were later returned to the firing line or other essential war duty by proper treatment that we are concerned. These men are comparable to the men with physical wounds returned to duty after a period of treatment. Only time and the exigencies of life will bring them forth, the aftermath of war.

What can be done for them? Much in the way of smoothing their way now and endowing them with new resources by training for vocations that will use their faculties to the best advantage. The best authorities will agree upon this. To illustrate: Many individuals who have by the stress of training or of fighting and because of the sudden change of environment from such as that of a salesman or bookkeeper earning $25 to $40 a week to one of the soldier of the line or the recruit in training who faces the prospect of war in all its present terrors, developed a mental disorder, and recovered. Now the war is over; they have been discharged to look after themselves. Conditions are much changed. They have lost contact with their old ways of living just long enough to make another adjustment necessary. This, together with the need of immediately making a living, taxes their lowered mental tone which is often below its power of responding. They become depressed, cannot continue at work because of lack of power of concentration, begin to feel weak, are restless, and finally entirely unable to "carry on." It is then that such men come to the attention of government authorities. Are they malingerers, to be driven out in scorn, are they "weaklings" beneath the consideration of a generous government, or are they human beings who by patriotism, idealism, or compulsion were brought into a situation to which they were unable to adapt? Are they not definitely casualties of war? That type of case will be helped by vocational training, for it will tide them over a difficult period of adjustment.

Delays Increase Difficulties

The government agencies now dealing with these cases are the Bureau of War Risk Insurance and the Federal Board for Vocational Education. To the latter falls the duty of rehabilitating wounded soldiers and other service men. Is it their duty to rehabilitate these nervous invalids? The answer is obvious, but the rehabilitating of these invalids is one of the most difficult problems the Board will have, and can be solved only by attacking it quickly and with a will. To delay will only be to increase the difficulties, and the ultimate cost.

Nearly two years have passed since the Federal Board for Vocational Education was given the function of rehabilitating our soldiers who were incapacitated by military service. Up to the present time this Board has adopted no policy regarding the management of mentally invalided individuals, nor until recently has the Bureau of War Risk Insurance. In consequence they have been shunted back and forth between these two organizations.

The District Office of the Federal Board in New York City seems to have been the first to have neuropsychiatrists working as examiners in the office. From material made available by this work it has been found that in a group of ninety-five cases examined and having present nervous disorders, they were diagnosed as follows:

Psychoneurosis	38
Mental Defect	12
Psychoses	10
Constitutional Psychopathic Inferiority	6
Epilepsy	11
Organic Nervous Disease	9
Cerebrospinal Syphilis	2
Endocrinopathy	5
Chorea	5
Gluteal Myositis	1
	95

Roughly, 75 per cent of this group were also found to be suitable for training according to the rules established by the Federal Board for Vocational Education, that is, an abnormal condition now present must be shown to be traceable to service or to have been aggravated by service; and training must be shown to be now practical or feasible. Discussing the conditions tabulated above from a medical aspect, the Federal Board viewpoint, and also in the light of experience obtained in government hospitals caring for similar ones and contact with them in the examining room of the Federal Board, my views regarding them may be summed up briefly as follows:

Retraining an Advantage

Of the psychoneuroses, most cases when properly selected by competent neuropsychiatrists can be trained to advantage. As indicated above, the condition first developed under the stress of military service and was relieved

by treatment. When, however, these men meet the difficult situation of making a new adjustment at discharge, accentuated at present by high living cost, they often relapse, or perhaps show that there has never been entire recovery. Relief from the financial stress and interesting occupation will without doubt help them on the road to rapid recovery. However, it is essentially improper to train these cases for more than one year or to encourage the idea of a longer period. Their vocational education must be under the direct supervision of men trained in dealing with functional nervous disorders.

Of the psychoses, only those of mild type appear for training; the more severe types are in Government or other hospitals. In the case of men with mild depressions, again relief from financial worry, together with occupation having a practical object, affords a diversion from brooding and depressive introspection, and a positive aid in treatment. In *dementia praecox* of the mild types, men can often be benefited by vocational training for simple pursuits. They can be made self-supporting and "social recovery" attained. Such cases frequently show little change over a period of years and can be made useful members of society. We have many of them about us in everyday life for whom allowances are commonly made for their peculiarities so that they do fairly well.

Mental defectives were, of course, not necessarily changed much by military service, except that because of their mental defect they adjust to changes badly. Consequently the change from civil to military life and back again may bring about difficulties and distress, such as development of a secondary mental disorder or a complete inability to meet the changed conditions. So in a measure such cases may be said to be also eligible for vocational training of a highly specialized type, supervised by those with special knowledge of mental deficiency and its practical management. Such training is also feasible in simpler pursuits, or some individuals may have special gifts which can be developed advantageously.

Policy Toward the Inferior

Of the constitutional psychopathic inferiority cases, all existed prior to service. Many were soon discharged at the camps because of inaptness for military duties of any sort. They did not do well before entering service and probably will not now. A determination of policy, however, should be made regarding this type, for they are rather frequent, nearly 6 per cent according to data above. It is certain that such a person without a useful trade is more likely to manifest anti-social conduct than one with a trade.

In the case of epileptics, in my experience, many have developed in service, if our information is dependable. It is not improbably so in most cases, hence they should have consideration. Few of the cases I have seen are institutional cases, most of them having only infrequent attacks. At best treatment usually only decreases the frequency of attacks. Yet they may be useful economically for a period of years. From a cold economic aspect such men should be given the advantage of some training to put them into a way of living which will make them economically profitable to the community for a longer time. From a humanitarian aspect, we cannot neglect them. Their disease was hastened by the stress and excitement of combatant or non-combatant duty; therefore, the Government is responsible to that extent, and must meet it.

Under the head of organic nervous disease above listed are grouped the brain injuries and peripheral nerve injuries. The latter give little difficulty, for the condition is definite, the degree of disability easily determined, and the diagnosis not questioned; but in cases of brain injury, whether resulting from direct or indirect cause, there is great improvement after a period of treatment and convalescence. No objective signs of the past trouble may exist and yet we know that individuals in civil life thus affected often show subsequent personality changes, have lessened mental power, or lose moral tone, become inefficient, and often end as vagrants. Brain surgeons tell us that such cases, though showing no neurological signs in ordinary examinations, have increased cerebrospinal fluid pressure, as indicated by manometer reading, and also slightly blurred optic discs. One New York school of brain surgeons advocates decompression operations when those signs are found and claims satisfactory results in improvement of the deteriorated personality. Among the few cases of brain injury I have seen, the men almost invariably claim some subjective changes. It seems almost inconceivable that such grave cerebral disturbance can occur without residual damage. May not, therefore, such cases have just claim for vocational training?

Loss of Endocrine Balance

Finally, there are many men in whom the sudden change from a sedentary or semisedentary life, to the drill field and the march, brought changes in the endocrine balance, especially of the thyroid secretions, with their concomitant symptoms of nervousness, rapid heart action, dyspnea on exertion, tremor, and exhaustibility. Such cases were well known to all medical officers in all armies. All of them that it has been my privilege to see returned to civil life were in sad plight. Unfortunately, theirs is a permanent condition requiring strictest regulation of habits if life is to be made at all endurable. They undoubtedly should be trained for some light occupation requiring a minimum of physical or mental strain.

The ideal system would be to have several centers, to which these men would be sent, where under judicious medical control they could learn painting, bookkeeping, or could become machinists or farmers without waste of time, and where, likewise, they would receive proper psychotherapeutic treatment. However, this plan is said to be now impractical; first, because the plan is too expensive; second, because the Government has no legal control of the individual; and lastly, because too much time would be required to develop such a plan.

Offers a Practical Solution

The most practical scheme would be to adopt the machinery available at present, by securing the cooperation of the War Risk Insurance Bureau, for that organization is struggling with another phase of the same problem. It is, however, rapidly developing a social service system and is about to open out-patient clinics for these cases. By using these agencies and the means already developed, a system of training under careful follow-up methods and suitable medical supervision ought rapidly to develop with little comparative expense and no waste of time.

In offering these suggestions there is but the one purpose in view—to forward the interests of a group of men with whom I have been in contact for more than two years and whom I have seen in the camps at home, in the hospitals of France, on the firing line, and, finally, again struggling with their problems in civil life. To these men, knowing them as I do, my sympathy is attached and it is my ambition to see that Government for which, notwithstanding their lack of certain native endowments in the mental field, they willingly gave their health and happiness, discharge its duty to them.

THE PROBLEM OF DISEASE

From a report by the Public Health Committee of the New York Academy of Medicine, New York City.

THERE was no one illness that was treated exclusively in the dispensary except two cases of jaundice which happened to be so cared for. Conditions where more than one-third of the cases were under treatment in the dispensaries were as follows:

EXCLUSIVE CARE IN DISPENSARY

	Cases in Dispensary	Total No. Cases	Per cent
Eye Diseases	33	55	60.
Ear Conditions	4	11	36.3
Nose Conditions	1	2	50.
Genito-Urinary	3	7	42.8
Boils	2	5	40.
Abscesses	8	20	40.
Eczema	3	8	37.5
Infections	6	18	33.3
Other Skin	8	11	72.7
Minor Surgical	8	18	44.4

This table is significant. Almost all of the conditions mentioned in it require the services of specialists. On the other hand, conditions which occurred among the families in the survey and which did not come at all to the dispensary were: diabetes, malaria, neuritis, neuralgia, gall stones, and a few others. In eleven instances the statement was made that the dispensary was used in cases of contagious dieease.

As previously stated, the share the dispensaries take in meeting the problem of disease among the self-supporting workingmen's families has in all probability been understated for two reasons: (1) The use made of the dispensary in certain minor conditions was probably forgotten, as were the illnesses themselves; and (2) the available dispensary facilities in the boroughs outside of Manhattan and Brooklyn are meager and, as an appreciable proportion of the families in the survey lived outside of these boroughs, and as a considerable group of the total number of families were Slavic and Italian, who make slight use of dispensaries, the aggregate use of dispensary reported was under the circumstances an underestimate.

With a view of ascertaining how the different nationalities treat minor illnesses three conditions very commonly reported, such as colds, stomach trouble, and "being run down," were classified by type of treatment according to nationality (Table XIV). Very few of such cases, a little over 1 per cent, went to the hospital; 12 per cent went to the dispensary; while 39 per cent consulted a private physician. The native born used the dispensary for one-fourth of these three more common minor illnesses; the Hebrews for more than one-fourth; the Irish for 14.3 per cent. the Negroes for 11.9 per cent; the Germans for 8.9 per cent; the Italians for only 4.4 per cent; the Slavs for less than 2 per cent. The native born employed private physicians and consulted at the dispensary for exactly the same number of cases. The Hebrews employed private physicians in almost 40 per cent, and the Slavs and Italians used the private physicians in more than half of the cases. Of those who did not trouble themselves about professional medical care, the miscellaneous group and the Irish head the list, with the Germans, Negroes and native born following. The least neglect was reported among the Hebrews.

As seen from Table XV the ratio of complete to partial incapacities was different in each of the several racial groups. The two groups which showed the highest number of cases of partial incapacity per thousand were the native born and the Irish. These two groups show the largest use of the dispensary, while the nationalities that show the least use of the dispensary, like the Italian and Slavs, had the lowest rates of partial incapacity and the highest rate of complete incapacity. On the other hand, the Hebrews, who use the dispensary very liberally, showed a low rate of partial incapacity and a high rate of complete incapacity.

From the analysis of the foregoing facts the apparent inference is that the racial attitude has the most important bearing on the use of dispensaries and other medical resources. The Hebrews are more concerned about obtaining medical treatment than any other of the groups, and they use the dispensary to a larger extent than the others; while the Slavs and Italians, although not as neglectful of their condition as some of the other racial groups, are utilizing medical institutions to a very slight extent. The lack of adaptability to American life

TABLE XIV.—AGENCIES EMPLOYED IN THE CARE OF PATIENTS COMPLAINING OF COLDS, STOMACH TROUBLE, OR BEING "RUN DOWN," TABULATED BY NATIONALITY

Nationality	No. of Cases	Hospital		Dispensary		Private Physician		Lodge or Society Doctor		Non-Professional Care	
		No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
U. S. A.	132	1	.8	32	24.2	32	24.2	2	1.5	65	49.3
Italians	91	2	2.2	4	4.4	51	56.1	5	5.5	29	31.8
Hebrews	114	3	2.6	29	25.4	45	39.5	16	14.1	21	18.4
Irish	42	..	..	6	14.3	6	14.3	1	2.4	29	69.
Slavs	169	..	..	3	1.7	98	58.	2	1.1	66	39.1
Germans	56	2	3.6	5	8.9	19	34.	1	1.8	29	51.7
Negroes	42	1	2.4	5	11.9	12	28.6	..	..	24	57.1
Miscellaneous	55	..	..	..	..	10	18.2	2	3.6	43	78.2
Total	701	9	1.3	84	12.	273	39.	29	4.1	306	43.6

TABLE XV.—NUMBER AND RATE OF PARTIAL AND COMPLETE INCAPACITIES IN MANHATTAN AND NUMBER AND PERCENTAGES OF FAMILIES USING THE DISPENSARY—TABULATED BY NATIONALITY.

Nationality.	No. of Families	No. of Individuals	Complete Incapacities		Partial Incapacities		Total Incapacities		Families Using Dispensaries	
			No.	Rate per 1000	No.	Rate per 1000	Nn.	Rate per 1000	No.	Per cent
U. S. A.	181	706	144	202	248	352	392	554	74	41.
Italian	279	1283	355	278	122	95	479	373	14	5.
Hebrew	215	960	243	253	148	154	391	407	54	25.
Irish	84	273	50	183	88	322	138	505	26	31.
Slav	105	417	95	228	81	194	176	422	7	6.7
German	121	441	79	179	92	208	171	387	15	12.4
Negro	193	599	74	128	105	168	179	286	13	6.5
Miscellaneous	83	296	52	176	66	223	118	399	8	9.6
Total	1261	4975		220	950	191	2044	411	211	...

and the difficulty of understanding English are the two most important causes for this phenomenon.

Each family interviewed was questioned as to why they have used the dispensary; or why they do not use it if they never had applied for ambulatory treatment. Four hundred and nineteen families stated their reasons for using the dispensary and 870 gave reasons why they do not use it. Of those who were using the dispensary, 52.4 per cent said that they went because they liked the treatment given; 0.5 per cent because they required serv-

TABLE XIII.—TYPE OF TREATMENT FOR 3536 CASES OF ILLNESS EXPERIENCED IN 1918—TABULATED BY DIAGNOSIS—ALL NATIONALITIES, ALL BOROUGHS

1918	Hospital		Dispensary		Private Physician		Lodge or Society Doctor		Druggist or Self Medication		Midwife or Nurse		Doctor from Institution to Home		Total		Grand Total by Sections
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	
Influenza	24	1.8	18	1.4	1011	78.6	66	5.2	152	11.7	12	.9	6	.4	1289	37.4	....
Pneumonia	16	14.4	1	.9	86	77.5	6	5.4	1	.9	1	.9	..	...	111	3.1	....
Bronchitis	3	4.	8	10.4	51	66.	3	4.	11	14.2	..	...	1	1.3	77	2.2	....
Pleurisy	2	14.3	1	7.1	8	57.	1	7.1	2	14.3	..	...	..	...	14	.4	....
Colds	1	.2	36	7.6	185	38.6	23	4.8	228	48.	1	.2	2	.4	474	13.5	....
Tonsilitis, etc.	1	2.3	9	20.4	16	36.3	5	11.3	13	29.5	..	...	..	...	44	1.2	....
Glandular Disease	..	...	1	20.	2	40.	1	20.	1	20.	..	...	..	...	5	.14	....
Tubercular Condition	4	28.6	4	28.6	3	21.4	1	7.1	1	7.1	..	...	1	7.1	14	.4	....
Other Respiratory Conditions	3	12.5	2	8.3	14	38.3	1	4.1	4	16.6	..	...	..	...	24	.7	2052
Malaria	..	...	..	...	..	...	..	...	2	100.	..	...	..	...	2	.05	....
Diabetes	2	50.	..	...	1	25.	1	25.	..	...	..	...	..	...	4	.11	....
General Debility	2	1.6	33	27.5	40	33.3	3	2.5	40	33.3	2	1.6	0	...	120	3.5	....
Headache	..	...	5	17.2	8	27.6	1	3.4	15	51.7	..	...	..	...	29	.82	....
Rheumatism	5	4.5	17	15.3	42	37.8	4	3.6	43	38.7	School nurse		..	...	111	3.1	....
Zymotic Disease	4	3.6	11	10.1	68	62.4	4	3.6	21	19.	1	.9	..	...	109	3.05	375
Insanity	8	89.	1	11.	...	...	..	...	..	...	..	...	..	...	9	.25	....
Epilepsy	..	...	1	20.	2	40.	..	...	2	40.	..	...	..	...	5	.14	....
Paralyses	4	25.	1	6.2	8	50.	1	6.2	2	12.5	..	...	..	...	16	.45	....
Neuritis	..	...	..	...	3	50.	..	...	3	50.	..	...	..	...	6	.17	....
Neuralgia	..	...	..	...	2	28.5	1	14.3	4	57.	..	...	..	...	7	.2	....
Miscellaneous Nervous	9	24.3	7	19.	16	43.2	1	2.7	4	10.8	..	...	..	...	37	1.1	80
Digestive Disturbance	6	5.6	15	14.	50	64.7	1	.9	35	32.7	..	...	..	...	107	3.1	....
Jaundice	..	..	2	100.	..	...	..	...	..	...	..	...	..	...	2	.05	....
Liver Condition	..	...	..	...	2	50.	1	25.	1	25.	..	...	..	...	4	.1	....
Dental Troubles	..	...	7	26.9	16	61.5	1	3.8	2	7.7	..	...	..	...	26	.7	139
Diseases of Eye	6	10.9	33	59.9	6	10.9	1	1.8	9	15.8	..	...	..	...	55	1.53	....
Diseases of Ear	1	9.2	4	36.2	5	45.4	..	...	1	9.2	..	...	..	...	11	.31	....
Diseases of Nose	..	...	1	50.	..	...	1	50.	..	...	..	...	..	...	2	.05	68
Cardiac	7	24.1	6	20.7	12	41.4	..	...	3	10.3	..	...	1	3.4	29	.82	29
Gynecological	9	17.6	12	23.5	20	39.	1	1.9	9	17.6	..	...	..	...	51	1.43	....
Kidney	3	23.1	1	7.7	9	69.2	..	...	..	...	..	...	..	...	13	.36	....
Bladder	..	...	1	100.	..	...	..	...	..	...	..	...	..	...	1	.03	....
Other Genito-Urinary	2	28.6	3	42.8	2	28.6	..	...	..	...	..	...	..	...	7	.2	72
Miscarriage	5	27.7	..	...	12	66.8	..	...	..	5.5	1	5.5	..	...	18	5	....
Confinement	45	11.6	..	..	89	23.	..	...	3	.8	239	61.7	11	2.8	387	10.9	405
Boils	..	...	2	40.	3	60.	..	...	..	...	..	...	..	...	5	.14	....
Abscess	..	...	8	40.	11	55.	..	...	1	5.0	..	...	..	...	20	.56	....
Eczema	1	12.5	3	37.5	3	37.5	..	...	1	12.5	..	...	..	...	8	.22	....
Infections	3	16.6	6	33.3	4	22.2	4	22.2	1	5.5	..	...	..	...	18	.5	....
Other Skin Conditions	..	...	8	72.7	2	18.1	..	...	1	9.2	..	...	..	...	11	.31	62
Appendicitis	11	61.3	..	...	3	16.6	..	...	4	22.2	..	...	..	...	18	.5	....
Hemorrhoids	3	50.	..	...	1	16.7	..	...	2	33.3	..	...	..	...	6	.17	....
Gallstones	1	50.	..	...	1	50.	..	...	..	...	..	...	..	...	2	.05	....
Hypertrophied Tonsils & Adenoids	30	66.6	4	8.8	8	18.	..	...	3	6.6	..	...	..	...	45	1.25	....
Operations on Eye	1	100.	..	...	..	...	..	...	..	...	..	...	..	...	1	.03	....
Operations on Ear	3	60.	..	...	2	40.	..	...	..	...	..	...	..	...	5	.14	....
Hernia	3	33.3	..	...	1	11.1	..	...	5	55.5	..	...	..	...	9	.25	....
Strain	..	..	..	...	1	33.3	..	...	2	66.7	..	..	..	...	3	.08	....
Sprain	..	...	1	25.	2	50.	..	...	1	25.	..	...	..	...	4	.11	....
Fracture	10	55.7	3	16.6	2	11.1	3	16.6	..	...	..	...	..	...	18	.5	....
Accidents and Injuries	13	15.5	23	27.3	17	20.2	22	26.2	8	9.4	1	1.2	..	...	84	2.4	....
Other Minor Surgery	2	11.1	8	66.6	6	33.5	..	...	2	11.1	..	...	..	...	18	.5	....
Other Major Surgery	24	92.6	1	4.3	1	4.3	..	...	..	...	..	...	..	...	26	.7	...
Infections	1	1.6	2	50.	..	...	..	...	2	33.3	..	...	..	...	6	.17	245
Condition Not Stated	..	...	..	...	6	75.	..	..	2	25.	..	...	..	...	8	.22	8
"Incurable Malady"	1	100.	..	...	..	...	..	...	..	...	..	...	..	...	1	.03	1
Total	279	7.9	311	8.8	1861	52.6	158	4.5	647	18.3	258	7.3	22	.6	..	...	3536

TABLE XVI.—REASONS FOR AND AGAINST USING DISPENSARY—TABULATED BY NATIONALITY.

Nationality.	Reasons For									Reasons Against										
	No. of Families giving reasons for.	Like the Treatment.	No Money.	Convenient Location.	Suggestion of School Nurse.	Advised by Friend.	To Get Baby Vaccinated.	Special Treatment.	Language Spoken.	No. of Families giving reasons against.	Able to Pay Private Doctor.	Self Medication.	No Time.	None Near.	Never Heard of it.	Too Sick.	Social Prestige.	No Illness.	Afraid.	Dissatisfied.	Could Not Speak English.
U. S. A.	78	34	1	26	3	10	3	1	..	95	26	3	4	..	1	2	15	31	4	9	..
Italian	107	52	21	7	4	8	15	..	..	178	50	13	9	2	1	..	2	70	20	11	..
Hebrew	25	14	10	..	1	..	..	..	..	133	79	4	4	..	1	..	1	38	1	5	..
Irish	57	26	1	20	2	6	3	..	..	32	9	1	3	..	1	..	5	6	1	6	..
German	23	14	2	2	..	..	4	..	1	67	27	4	2	..	1	..	1	24	1	7	..
Slav	31	18	8	2	1	1	1	..	..	202	43	5	3	5	57	1	6	55	6	10	11
Negro	76	63	16	6	1	..	..	..	..	98	21	..	8	..	3	..	8	23	9	26	..
Miscellaneous	22	9	1	7	..	2	2	1	..	65	11	2	4	3	11	..	7	16	7	4	..
Total	419	220	60	70	12	26	28	2	1	870	266	32	37	10	76	3	45	263	49	78	11
Total per cent.	..	52.4	14.3	17.	2.8	6.2	6.6	.5	.2	...	30.6	3.7	4.3	1.1	8.7	.4	5.3	30.2	5.6	8.9	1.2

ices of specialists which they could not otherwise obtain; 14.3 per cent stated that the lack of funds was the reason. In 17 per cent convenient location was the determining factor; 15.6 per cent were referred by friends or the school nurses, or came to get the baby vaccinated. Of the 870 who gave reasons for not using the dispensary, 266, or 30.6 per cent, said that they were able to pay private physicians and 263, or 30.2 per cent, stated that they never had occasion to use the dispensary. Eliminating these two groups of 529 families from consideration, the reasons given by the remaining 321 families were as follows: 76 of them had never heard of a dispensary, the Slavs being the predominating element in that group; 49 said they were afraid of dispensaries,—here the Italians were the predominating element; 78 stated that they were dissatisfied with former treatment; 11 did not use dispensaries because they could not speak English, 45 because they would lose social prestige, the native born leading in this group (Table XVI).

It may be of interest to quote some of the statements made expressing the attitude of the people toward the dispensary.

The chief faults found with the dispensary are the long waiting time, hurried procedure, and the lack of personal interest taken by physicians; also abruptness in dealing with patients.

"Half the cure is in kind of doctor you have. Seven years ago I was at Demilt for rheumatism and liver, made two visits but prefer private doctor" (Irish).

'Four years ago went five or six months to Roosevelt for stomach trouble—think it saved my life" (German).

"Father would go to dispensary if open at night and if he did not have to waste so much time there" (Italian).

"Goes to Columbus Hospital because that is an Italian hospital and his own doctor belongs there" (Italian).

"Likes to be treated by more than one doctor" (Italian).

"Thinks people do not get proper attention. Prefers private doctor" (Hebrew).

"Cannot leave smaller children alone for so long a time" (Hebrew).

"We call the doctor—feel that free patients do not receive attention or care" (Miscellaneous).

"Patients would really like to know what is the matter with themselves but they have to wait an awful long time, from one to four P. M., just to have the doctor see you for five minutes" (Miscellaneous).

"Was three or four times—did not like it at all. They never tell you anything, and why should they not?" (Miscellaneous).

"In dispensaries you have to sit around and wait so long that one gets a cold and does not know what else he can catch. Doctors want to experiment on those poor patients and have no time or interest to follow up cases, except Dr. C., who certainly did help" (Miscellaneous).

"Went to dispensary for ear trouble—but there was such a crowd that she could not be taken care of—would go if opened in evening" (Miscellaneous).

"Married daughter is going to dispensary now for throat trouble, and likes it very much. Pay $1 each time (?) and for medicine. Family never call in doctor, always try to cure themselves" (Italian).

"Constant dispensary care for minor ailments keeps her family in good condition" (Italian).

Duration of Illness and Cost of Treatment

The data on the duration of illness are so unsatisfactory that no attempt was made to tabulate them. The

TABLE XVII.—AMOUNT PAID FOR MATERNITY CARE, TABULATED BY TYPE OF CARE—NEW YORK CITY, ALL NATIONALITIES.

To Whom Paid	No pay		Less than $6.00		$6.00 to $10.00		$11.00 to $15.00		$16.00 to $20.00		$21.00 to $25.00		$26.00 to $30.00		$31.00 to $35.00		$41.00 to $46.00		Not determined		Total
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	
Private Physician	3	3.3	2	2.2	2	2.2	19	21.3	10	11.2	30	33.7	6	6.7	5	5.6	7	7.8	5	5.6	89
Midwife	2	.8	3	1.2	139	58.1	69	28.8	11	4.6	1	.4	1	.4	..	..	..	..	13	5.4	239
Hospital	31	69.	..	..	1	2.2	..	..	5	11.1	1	2.2	3	6.6	1	2.2	1	2.2	2	4.4	45
Institutional Doctor	5	45.4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	54.5	11
No Care	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	100.	3
Total	41	10.8	5	1.2	142	36.6	88	22.6	26	6.7	32	8.2	10	2.6	6	1.5	8	2.0	29	7.4	387

information secured as to the amount of money spent during the year for medicines and treatment either at home or in hospitals is likewise fragmentary. The information for 56 per cent of the families in the lowest economic groups (A and B), which is more or less accurate, shows the following disbursements for medical and other kind of treatment during the year 1918: 16.8 per cent of the families spent no money on treatment; 37.0 per cent spent under $11.00; 19.5 per cent from $11 to $20; 10.8 per cent from $21 to $30; 7.6 per cent from $31 to $50; 2.4 per cent from $51 to $70; 0.8 per cent from $71 to $90; and 5.1 per cent $90 plus.

These disbursements include the costs in connection with childbirth. The information secured with reference to costs in maternity cases is more definite than the rest of the material bearing on the cost of treatment, and is offered herewith separately.

It shows (Table XVII) that 10.8 per cent of the maternity cases received care during childbirth free, either in institutions, or from visiting physicians sent from institutions; that 36.6 per cent of the cases paid from $6 to $10, and 22.6 per cent from $11 to $15. Only 10.7 per cent of the families paid between $21 and $30 per case, and 3.5 per cent more than $30. In the group of 88 cases in which the expenditure was from $11 to $15, the doctor was in attendance in 19; in the next higher group, 10 out of the 26 were private physicians' cases, and 5 women were confined in hospitals; while in the group expending from $21 to $25, 30 out of the 32 cases were under the care of private physicians. In families spending more than $20 per case of childbirth the midwife was employed in only a very small percentage of cases.

(Concluded.)

THE DEMAND FOR MEDICAL AND PSYCHIATRIC SOCIAL WORKERS

By M. A. CANNON, Director, Social Service Department, University Hospital, Philadelphia, Pa.

TRULY the harvest is plenteous but the laborers are few in the field of medical and psychiatric social work. Fifteen years ago a department of social work in a hospital was unheard of, and "social psychiatry" had not been invented. Now there are more than three hundred hospital social service departments in the country and hospitals not yet so equipped are in increasing numbers seeking trained workers to start new departments. As for psychiatry, it is now generally recognized to have given a new method and a new point of view to social work of all types; its methods are constantly being applied in new fields, and workers with training in psychiatric social work are more and more in demand.

An Adjunct in Diagnosis

There are several reasons for the rapid growth of social work in hospitals. It makes for economy in medical and administrative practice, by supplying the extra hospital inquiry and adjustment necessary to the securing of desired results in many cases, and the enlightened hospital recognizes this economy. Moreover, many physicians use the department of social work as an adjunct in medical diagnosis and treatment, depending upon it to get information as to living conditions and social experience of patients and to carry out in detail directions as to food, rest, exercise, work, recreation, and change of environment or habits.

There is an increasing community interest in everything pertaining to the public health and the community is beginning to see the social service department as a public health agency and to ask that it form a part of hospital equipment.

Medical and psychiatric social work is also finding its use in industry as a part of employment management, and here it promises to demonstrate a value which at least in part can be measured in dollars.

And, finally, as a branch of the profession of social work this casework with physically and mentally sick people offers an opportunity for study of social diagnosis and social treatment which social workers in the older branches have recognized with great interest.

The pioneers in medical social work have had to learn their trade through a long apprenticeship. Those now entering the field, however, can prepare themselves for it by special training, and there is a strong feeling on the part of executives in the existing departments that training should be encouraged and systemized to the fullest possible extent.

Under the pressure of this demand for training schools of social work have developed new courses, and one college, Smith, has created a new training school for the especial purpose of teaching medical and psychiatric social work. Training can now be had in Boston, New York, Northampton, Philadelphia, Indianapolis, and Chicago. The New York School of Social Work gives a two-year course. Teacher's College has a course for nurses. The Boston school gives a two-year course and a one-year course. The Smith Training School gives a course covering thirteen months, including two summer sessions, from July-August, and nine months of practice in hospitals. The Philadelphia School gives a one-year course. The Social Service Department of Indiana University gives undergraduate and graduate courses in Medical Social Work. The Chicago School of Civics is planning a course to start this year. Field work in hospitals is a part of the training in all the above schools.

Work is waiting for the classes that shall come from these schools. Much work needs doing and is not done for lack of workers. The field is full of opportunity; one who brings into it trained intelligence and energy is sure to make progress and may even add to the sum of human knowledge. Certainly the future of medical and psychiatric social work depends upon the coming procession of trained workers.

HEALTH HAZARDS IN CHEMICAL INDUSTRIES

The New York State Department of Labor has issued a special bulletin on "Health Hazards of the Chemical Industry" in New York State. This bulletin of 69 pages summarizes the results of a study of the following conditions: (1) The heating of factories with the fire hazards presented thereby; (2) Lighting of factories, and the location of switches, fuse plugs, and electric bells, particularly where inflammable liquids were used and the danger of explosion was present; (3) Tanks, particularly those in which there was the possibility of the generation of excessive pressure; (4) Hazards due to breaking up of raw materials; (5) Spontaneous combustion occurring in certain materials; (6) Industrial poisoning not reported to the Industrial Commission because they are not included in the list enumerated in Section 65 of the Labor Law; (7) Causes of explosions which occurred during the course of the investigation; (8) Lack of knowledge, by the men employed, of the character of the materials handled, as shown by the careless modes of handling both raw material and finished products; and, (9) General safe and unsafe practices.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

THE PERITONEUM. Vol. I, Structure and Function in Relation to the Principles of Abdominal Surgery. By Arthur E. Hertzler, M.D., F.A.C.S., surgeon to the Halstead Hospital, Halstead, Kas.; associate professor of surgery, University of Kansas; formerly professor of pathology, experimental surgery and gynecology, University Medical College, Kansas City, Mo. A contribution from the laboratory of the Halstead Hospital, and from the Department of Anatomy of the University of Illinois; and Vol. II, Diseases and Their Treatment.[1]

Hertzler's work on "The Peritoneum" comprises two volumes. In the first volume he discusses the structures and functions of the peritoneum, especially in relation to the principles of abdominal surgery. The chapter on the "Prevention of Adhesion" is very interesting and ought to be especially recommended to those surgeons who depend on posture, oil, or any of the other so called preventatives for adhesions to overcome that which they aggravate by neglecting the following simple rules, "to use the utmost of gentleness and care, to place the minimum of foreign bodies of all sorts, either temporary or permanent, within the abdominal cavity, and to cover every denuded surface as carefully as tho it were an unpardonable sin."

Volume two deals with the diseases of the peritoneum and their treatment. Under diseases of the peritoneum the author discusses tumors, tuberculosis, peritonitis in appendicitis, cholecystitis, gonorrhoeal peritonitis, etc., etc.

The many excellent illustrations by Mr. Tom Jones, the exhaustive bibliography, and the careful index, still further enhance the value of the work.

THE PROBLEM OF THE NERVOUS CHILD. By Elida Evans. Introduction by C. G. Jung, M.D., LL.D.[2]

This book is written for the purpose of aiding parents who, in the training and education of their children, have arrived at the point where the methods already used have proved inadequate. The author has succeeded in presenting the problems in an analytical manner calling attention to the many complexities of the child's physical and mental life. As to a solution to the many problems, not every reader will agree with all the suggestions made by the author. One who is at all acquainted with the subject knows that there is no one solution; that each problem requires a different answer, and that each child must be individualized. The author is too much under the influence of psycho-analysis and therefore sees matters too frequently from that point of view, attributing many simple phenomena in life to nothing else but sexual instinct.

In general the book is clearly written and should be read by parents, teachers, and physicians.

INJURIES TO THE HEAD AND NECK. By H. Lawson Whale, M.D., Camb., F.R.C.S., Eng. Capt. R.A.M.C. T.F.; Surgeon for the Ear, Throat and Nose to the London Temperance Hospital, and to the Hampstead General Hospital With a preface by Colonel Frederick F. Burghard, C.B., M.D., M.S., F.R.C.S.[3]

In this book the author describes battle wounds of the head and neck as he saw them and treated them at the Base Hospital at Sidcup, England. The author has not attempted to publish a text book, but has gathered an interesting group of cases covering the general type of head and neck injuries He has discussed at length the symptoms, signs, mode of treatment, and results. Injuries to the brain and eye are not included.

The book will be of interest, especially to the otorhinolaryngologist who during the war has been in close touch with oral and plastic surgery. R. B. B.

TEXT BOOK OF SURGICAL OPERATIONS. Illustrated by Clinical Observations for Physicians and Students. By Prof. Fedor Krause, Privy Medical Councilor, Directing Physician, Augusta Hospital, Berlin. In Association with Emil Heymann, M.D., Chief Physician, Augusta Hospital. Translated into English and edited for American readers by Albert Ehrenfried, A.B., M.D., F.A.C.S., assistant visiting surgeon, Boston City Hospital; surgeon Boston Consumptive's Hospital; assistant in surgery, Harvard Graduate School. In six volumes.[4]

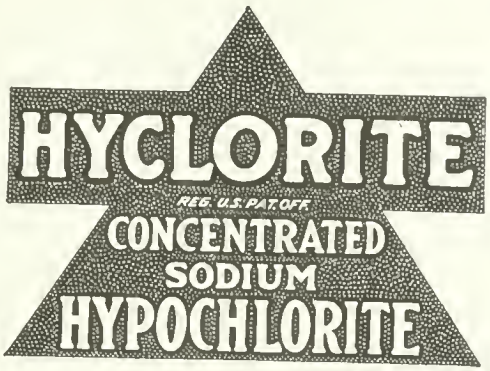
The first two volumes of Krause, Heymann, Ehrenfried's six-volume text book of surgery have reached the reviewer. The entire arrangement is original. The reader realizes that he is receiving the advantage of the personal experience derived from the enormous practice of a surgeon of undisputed fame. The careful analytical presentation of the subject matter conveys the assurance that the chapters have not been compiled from other textbooks, but that the authors have pondered deeply over the matter, tried out several different theories and methods, and, because of their results, have finally decided on those published.

The aim of Dr. Krause was to present a treatise of operative surgery from a clinical aspect. For this reason each individual condition is exemplified by an actual case history. In these histories the important diagnostic factors are brought out.

The operative treatment is given in detail, the exact protocols having been dictated at the operating table. The various steps are well illustrated by means of actual photographs and sketches. Where it was possible to check up by means of post-mortem examination, the autopsy findings are recorded. The after-treatment and results are given.

The books are well written, well illustrated, well printed. The subject matter is the gratifying result of careful study. The work is sure to meet with the favor of the surgeon, the teacher of surgery, and the student.

1. C. V. Mosby Company, St. Louis, 1919.
2. Dodd, Mead and Company, New York, 1920.
3. Paul B. Hoeber, New York, 1919.
4. Rebman Company, New York, 1917.



Solvent with High Germicidal Action

ALTHOUGH Hyclorite (undiluted) has 7 to 8 times the hypochlorite strength of the ordinary Dakin's solution, clinical tests show that Hyclorite diluted to make a Dakin's solution is less irritating than the Dakin's solution commonly prepared from other agents, since its alkalinity is lower and of less irritating character.

Hyclorite is a solvent of necrosed tissue.

It is always ready. Just add water. No testing needed.

Prepared always to a definite hypochlorite strength (Na OCl 4.05%) and exceedingly low alkalinity.

Possesses remarkable stability and thus may be kept without loss of germicidal activity for long periods.

(Accepted by A. M. A. Council on Pharmacy and Chemistry for N. N. R.)

Write for samples and literature to

BETHLEHEM LABORATORIES, Inc.

BETHLEHEM, PA.

Manufactured by
General Laboratories,
Madison, Wis.

For
Bethlehem Laboratories, Inc.
Bethlehem, Pa.

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.

H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRIPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

22-24 East Ontario Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

Books of the Month

(Continued from Page 642)

THE CHILD IN HEALTH AND ILLNESS. By Carl G. Leo-Wolf, M.D.

The author of this book has departed from the customary style of writing books for mothers, in that he included not only information about the healthy child, but also information and suggestions about the sick child. On the whole, the author was successful in presenting a book to the young mother that supplies information and yet does not make a doctor out of her. Some illustrations are rather superfluous, as for instance the one "Filling a hot water bag," and the one "Pad over diaper." These illustrations add nothing to the book. Most of the illustrations, however, are clear and useful.

SIMPLIFIED INFANT FEEDING, with eighty illustrative cases. By Roger H. Dennett, B.S., M.D., associate professor of diseases of children, New York Post-Graduate Medical School, attending physician of the Children's Department, New York Post-Graduate Hospital.[6]

The book presents the subject of infant feeding in a clear manner. The word "simplified" in the title is possibly too strong a term. For years pediatricians have been trying to simplify infant feeding, some by hard and fast rules, others by short formulas. So far they have met with no success. One cannot learn infant feeding while standing on one foot, just as one cannot learn gynecology or obstetrics by simplified methods. The book deserves a place in American pediatric literature.

DISEASES OF THE CHEST AND THE PRINCIPLES OF PHYSICAL DIAGNOSIS. George William Norris, A.B., M.D., and Henry R. M. Landis, A.B., M.D. With a chapter on the Electrocardiograph in Heart Disease by Edward B Krumbhaar, Ph.D., M.D. Second Edition, Revised.[7]

Nothing but good can be said of the second edition of this book, which is an improvement over the first edition. It is well planned and well executed. Diseases of the chest are thoroughly and exhaustively covered and the book work itself is a model. The illustrations are particularly valuable, as almost all of them are specimens or records of actual cases. The cross-section method is used to a great extent, and this is always the most logical way of presenting pathological causes for changes in physical signs. The book cannot be recommended too highly.

SYMPTOMS IN THE DIAGNOSIS OF DISEASE. Hobart Amory Hare, M.D., B. Sc. Eighth Edition, Thoroughly Revised. Illustrated with 195 engravings and 9 plates.[8]

Here is another book in its eighth edition, a book which considers the disease from the standpoint of the patient's symptoms. It contains a well digested mass of clinical observation which certainly must be of considerable value to the practicing physician. One wonders, however, whether the method is a good teaching method for younger students of medicine who have not previously digested the study of disease from the standpoint of abnormal physiology. If the prime purpose of education is to teach men to think, then we doubt how much good is obtained from learning that "the headaches of indigestion are characterized by two important facts..... that they are often relieved or prevented by the use of a purgative, even if constipation has not been present." For we know that almost any type of inorganic headache may be relieved by a good purge. However, this philosophical objection does not detract from value of the book when placed in proper hands.

5. George H. Doran Co., New York. 1917.
6. J. B. Lippencott Company, Philadelphia. 1920.
7. W. B. Saunders Company, Philadelphia and London. 1920.
8. Lea & Febiger, Philadelphia and New York. 1920.

It's Easy to Overcome Many Disorders When Their Cause Is Recognized

PHYSICIANS now generally recognize that improperly-selected and badly-prepared food may predispose to Brights disease, diabetes, rheumatism, blood pressure changes, tuberculosis, rickets and cachetic conditions, neurasthenia, anemia, and all forms of indigestion, malnutrition and mal-assimilation.

In any of these disorders it is highly desirable to increase the digestibility of the food, and prevent pathological deviations in the isomeric transformation of the proteid molecule.

Food that is "slow fried,"—that is saturated with grease, lard and other fats that cannot stand high temperatures without burning—is an actual exciting cause of many abnormal conditions.

Mazola is capable of being heated to a temperature of 650° or more before burning. Meat, fish and other food fried in Mazola, have their surfaces seared over almost instantaneously. There is no loss of odor or flavor; and there is only a minimum of absorption of this oil form.

Patients troubled with flatulency, who suffer from gastric and abdominal distress after eating, usually improve when their food is prepared with Mazola, instead of animal fats or ordinary cooking compounds.

Mazola is a perfectly splendid salad oil, sweet and bland, and very readily assimilated in this form.

Order your patients to prepare their food with Mazola, Doctor, and note the rapid improvement in their condition.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City

MAZOLA IS SOLD BY ALL GROCERS EVERYWHERE

Its Purity Is Protected

In our scrupulously clean, fresh-air plants, as in our laboratories, we employ every precaution to insure the purity of Carnation Milk.

It is pure cows' milk, evaporated, hermetically sealed and sterilized. Only water is removed in the process.

All the natural food values are retained, unimpaired.

Physicians and nurses can safely recommend Carnation Milk to their patients knowing it to be pure and wholesome.

CARNATION MILK PRODUCTS COMPANY
934 Consumers Building, Chicago
934 Stuart Building, Seattle

Carnation Milk

"From Contented Cows"

Sold by Grocers Everywhere

The label is red and white

HOME FOR INTEMPERATES BECOMES HOME FOR THE WORTHY

The Massachusetts Home and Hospital for Intemperate Women has become the Massachusetts Home for Needy, Worthy Women as a result of the workings of prohibition. The Institution was one of the oldest among Boston's charities. With the passing of liquor the need for its service rapidly decreased.

CURTAILS WELFARE WORK

It is reported in the press that the Youngstown Sheet and Tube Company, Youngstown, Ohio, has abandoned a large part of its welfare work conducted by the Industrial Relations Department. It is said that this action was determined upon because employees do not want and do not appreciate the assistance of the Welfare Department. During the past five years this Company has developed a comprehensive program, including Americanization work, visiting by skilled nurses, legal aid, hospital and medical service, and home building. It is announced that the employees' representation plan and the home building plans will be continued.

STUDY CAUSES OF LONGEVITY

A study of persons who have lived to be seventy years of age or more has been undertaken by Benzion Liber, M.D., D.P.H., 61 Hamilton Place, New York City, with the purpose of discovering the cause why their lives have been longer than that of the average man, and in the hope that conclusions may be reached which will help in the prolongation of the life of others. The collaboration of physicians, public health officers and social workers is desired in order to bring together a large number of observations. Those sufficiently interested in health conservation to give this matter some of their time whenever they meet an old man or an old woman will be supplied by Dr. Liber with copies of his questionnaire.

NEW HEALTH MOVEMENT

A new health movement, "The Woman's Foundation for Health," is being planned by the Y. W. C. A. and fourteen cooperating organizations. The plans provide for a central bureau and also health centers in six or eight sections of the country. These health centers will attempt to coordinate the educational, social, and recreational agencies of a community for constructive health work, especially in the promotion of mental and emotional health. "The average person by the term 'health'," says Dr. Hannah Morris, "generally means a study of mere physical health, but we realize now what a large part our thoughts and emotions play in our physical condition."

THE HIGH COST OF INFECTION

In the report of the Massachusetts Industrial Accident Board from July 1, 1918, to June 30, 1919, the total number of accidents reported was 178,045. The cases of infection from these injuries of this number were 5,178; 19 cases were fatal; 34 of the cases resulted in permanent partial disability; one in every 13 non-fatal cases became infected. The total amount paid out for medical expense and compensation to injured employees for the year ending June 30, 1919, was $5,219,760.24. It is estimated that 7 7/10 per cent of this expense, or $401,921.57, was due to infection, an unanswerable argument that greater effort must be made to diminish the number of infections.

Perfect Relaxation, Rest, Comfort—and Sleep

The production of Simmons Beds begins on the common sense principle that a bed is first of all made to sleep in .

EVERYBODY knows that sound sleep means sleep of complete relaxation and repose, yet such a condition cannot be brought about unless one's *bed* invites it.

The choice of a bed, spring and mattress is therefore important—*very* important, if the sleep we get is to be of that refreshing, invigorating character so necessary to good health and personal efficiency.

Few people get enough sleep. Many even begrudge the time the right kind of sleep requires. Others get their full night's sleep but are not *rested* when morning comes.

Still others are not benefited by the sleep they get because their sleep is disturbed by the mechanical squeaks and rattles of their bed, its springs, or the hard, unyielding character of its mattress.

Nobody can really sleep deeply and be fully benefited by their sleep unless he or she is completely relaxed—unless the bed, spring and mattress are so comfortable as to invite repose and sleep.

Simmons Beds, Springs and Mattresses, "Built for Sleep" cost no more than perfect merchandise of this character ought to cost; no more than anybody who values comfort and health is prepared and willing to pay.

Noiseless, supremely comfortable and altogether serviceable—they are always to be distinguished by the Simmons Mark—an unfailing assurance of quality, sanitation, comfort and service.

Special Data and descriptive booklets of Simmons Sleeping equipment for Hospitals, Schools and Recreation Camps, will be mailed upon request

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

SAUER'S
PURE FLAVORING EXTRACTS

Preferred—

Compare Sauer's extracts for **Purity, Strength** and **Fine Flavor** with any other flavoring extract. Then you will convince yourself; eliminate worry, bother and waste of time by always using Sauer's in the flavoring of foods to stimulate the appetites of the sick or convalescents.

Sauer's extracts are made from the choicest materials obtainable in a modern plant with every possible care taken in their manufacture. Prepared in glass-lined tanks and filled by vacuum into sterilized bottles.

Sauer's Extracts have won seventeen highest awards and medals at various American and European Expositions.

Uniform high quality has made Sauer's the largest selling band in the U. S.

Ask for price list.

Further Particulars free for the asking

The C. F. Sauer Company

Richmond, Virginia

REPORT OF INDUSTRIAL PHYSICIANS AND SURGEONS

The Proceedings of the American Association of Industrial Physicians and Surgeons for the convention held in Atlantic City June, 1919, have recently appeared. This volume of 127 pages is a valuable contribution to the growing literature on industrial medicine and surgery. It contains not only the papers presented at the meeting, but all of the discussions which ensued.

GUARD WORKMEN FROM BUZZ SAWS

The Massachusetts State Department of Labor and Industry has formulated regulations providing that circular rip saws shall be guarded by spreaders located in the rear of the saw and under the table. Similar precautions are to be taken with other kinds of saws, these regulations being designed to lessen the hazards connected with the wood working occupation.

INSTITUTE FOR INDUSTRIAL NURSES

AN institute of industrial nursing is to be held under the auspices of the Visiting Nurse Association, 35 Elm Street, New Haven, Conn., September 20-23, 1920.

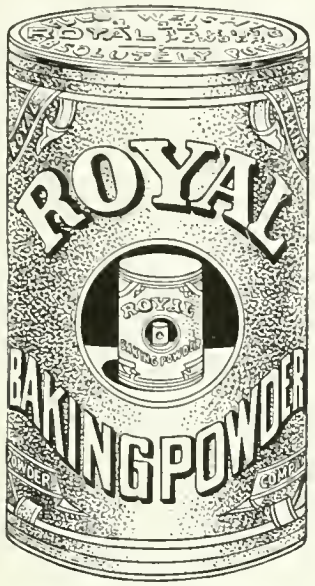
This institute offers a brief and intensive training in the problems of industrial nursing, organization, industrial hygiene, industrial management, and social reconstruction as these problems are related to the practical work of the nurse in industry. A grasp of these broader relationships which find no place in the ordinary training of the graduate nurse is essential for the fullest success, and knowledge is progressing so rapidly that even the most experienced industrial nurse can profit by contact with leading authorities on public health and industrial relations for the discussion of the latest advances in these fields.

Efficient factory management is recognizing more fully, month by month, the importance of special training in this field of work. The industrial nurse who can carry on the routine work of the plant hospital efficiently and can also assist in adjusting family problems and keeping the employee and his family physically fit and happy, is an asset not only to the industry, but to the community at large. The Institute is designed for graduate registered nurses who are engaged in, or desire to be engaged in industrial nursing.

The registration fee will be five dollars, payable at the time of registration. No application for registration will be received after September 12. The office of the Visiting Nurse Association will secure rooms through the Young Women's Christian Association for nurses if they write for reservation at least two weeks before the institute opens.

New Haven is one hour and forty-five minutes ride from New York City, located on Long Island Sound. Facilities for sea bathing, boating, tennis, and other sports, and pleasant walks, are available to students. Miss Carin H. Degermark, director of recreation for women. Community Service, will have charge of the recreational program.

Excursions to industrial plants will be in charge of Christine C. Gardener of the United States Rubber Company. Topics on the program include public health nursing, industrial hygiene, social problems and case work, hospital organization and record keeping, industrial diseases, industrial relations, industrial psychology, nutrition, and state health programs.



A Can of

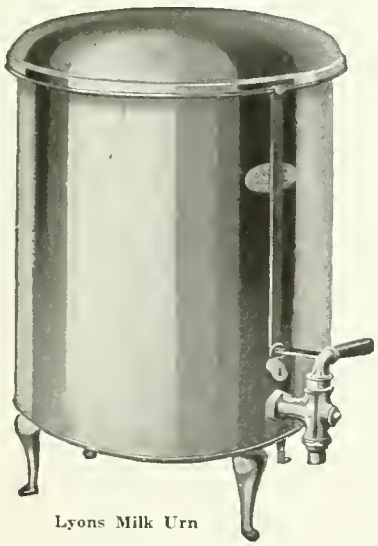
ROYAL
Baking Powder

contains no doubts as to quality, purity or wholesomeness.

Royal Baking Powder is made from cream of tartar, derived from grapes, and has no equal for making healthful, appetizing muffins, biscuits, cake and pastry.

Absolutely Pure **Contains No Alum**

LYONS URNS Will Be Demonstrated at the



Lyons Milk Urn

Lyons Urn for the Diet Kitchen
Lyons Urn for the Mess-Hall

AMERICAN PUBLIC HEALTH ASSOCIATION CONVENTION
Sept. 13 to 17, San Francisco, Cal.
AMERICAN HOSPITAL ASSOCIATION CONVENTION
Oct. 4th to 8th, Montreal, Canada
AMERICAN DIETETIC ASSOCIATION CONVENTION
Oct. 25th to 27th, New York City

CLEAN RICH MILK
For Your Patients—For Your Employees

Dipping Milk Is Sloppy—
Bottled Milk Is Costly

LYONS SANITARY MILK URN is the only urn that dispenses milk containing the *proper percentage of butterfats* in each and every glass served, without any mixing or other agitating mechanism. It makes no difference whether the milk remains in the urn 2 minutes or 24 hours. All you need do is place the day's supply of milk into the urn and *draw it out through the faucet as you need it.* The milk will always be sweet, clean, cold, and fresh.

Another striking feature of the Lyons Urn is that the cover and faucet can be locked after each meal.

YOU CAN PURCHASE LYONS MILK URNS IN ANY SUPPLY STORE OR DIRECT FROM US

LYONS SANITARY URN CO.
235 East 44th Street ∴ New York City

"L-F"
Model 530

COOLIDGE
X-Ray Unit

0-30 Milliamperes
3-5-in. Spark Gap

Automatic Time Switch
Magnetically Controlled Exposure Switch

Here's the equipment for the physician or moderate-sized hospital. Just what is needed for the large hospital—can do all the radiographic work, leaving the larger equipment free for therapeutic work.

Mail the Coupon Today

The Liebel-Flarsheim Co.

410-416 Home Street

Cincinnati, O.

LIEBEL-FLARSHEIM CO.
Cincinnati, O.
Send us, without obligation, further information about your Model 530 X-Ray unit. We have ..... volts ..... volts direct current, ... cycles alternating current.

Electrically Lighted Surgical Instruments

Twenty years in the manufacture of electrically lighted surgical instruments, if it has not brought perfection in instrument construction, at least has kept the Electro Surgical Instrument Company abreast of the advances made by leading specialists of the medical and surgical profession.

So it is that instruments stamped "E. S. I. Co." speak of the accomplishments of the noted men whose suggestions are embodied in their construction and a service of maintenance possible only in instruments of our manufacture.

Users of instruments stamped "E. S. I. Co." are certain sharers in this service.

Origination begets imitation. Be sure of our exact name

Illustrated Catalogue Sent Upon Request

ELECTRO SURGICAL INSTRUMENT COMPANY

Rochester, N. Y.

RAILWAY SURGEONS TO MEET

The thirtieth annual session of the New York and New England Association of Railway Surgeons will be held at the Hotel McAlpin, New York City, October 19, under the presidency of Dr. William B. Coley. Dr. George W. Crile, Cleveland, will deliver the address on surgery.

INTERNATIONAL MEDICAL CONGRESS

The Fifth International Medical Congress convened in Paris July 19 and was welcomed by Premier Millerand. This conference devoted a large part of its time to the progress made in the practice of medicine and surgery since the beginning of the war. More than twenty American physicians and surgeons attended the conference.

NEW MEDICAL SERVICE BULLETIN

The Liberty Mutual Insurance Company of Boston has begun the publication of a series of medical service bulletins. The August issue contains articles on the "Treatment of Burns," "A Step in the Radical Cure of Inguinal Hernia," "A Comparison of Laboratory Tests of the Effectiveness of Aristol and Ferstade Powder," and "Punctured Wounds."

OCCUPATIONAL BUREAU FOR NURSES

The National Organization for Public Health Nursing with headquarters at 156 Fifth Avenue, New York City, and branch office at 116 S. Michigan Avenue, Chicago, is conducting an informal occupational bureau. Nurses desiring new positions are earnestly requested to communicate with the Organization. Associations or firms needing nurses are also asked to write or visit the N.O.P.H.N. No charge is made for the service.

CONFERENCE ON VENEREAL DISEASES

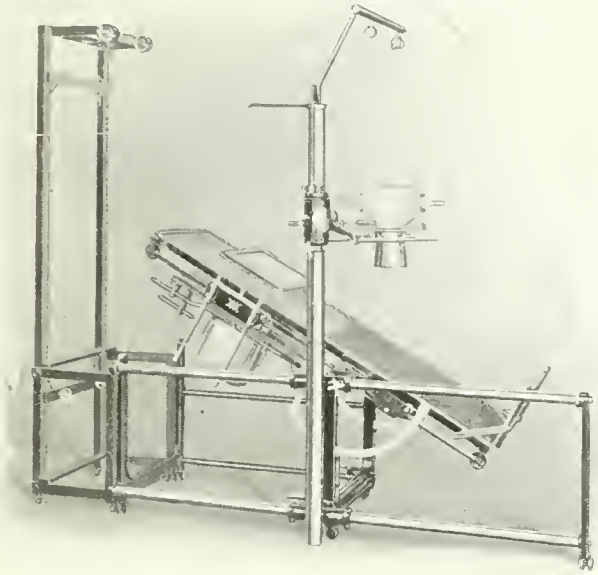
A Pan-American conference on the control of venereal diseases will be held in Washington, probably in December, under the auspices of the American Red Cross, the United States Public Health Service, the United States Interdepartmental Social Hygiene Board, and the American Social Hygiene Association. The work of the conference will deal with three different groups of problems in the control of venereal diseases, namely, the purely scientific, the administrative, and those which have particular public interest.

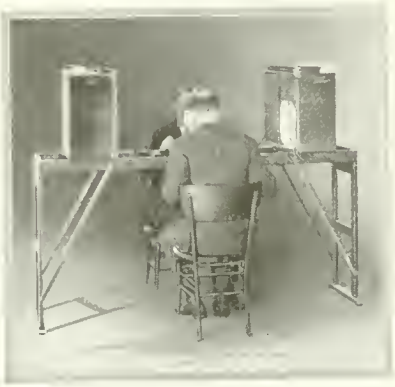
COST OF LIVING

The latest figures on the cost of living of working families issued by the United States Department of Labor Statistics for the principal cities of the country show that there has been an increase since December, 1915, of 114 per cent in Baltimore, 110 per cent in Boston, 114 per cent in Chicago, 136 per cent in Detroit, 119 per cent in New York, 122 per cent in Norfolk, 113 per cent in Philadelphia, 110 per cent in Seattle. The cost of food alone has increased 110 per cent in Baltimore, 105 per cent in Boston, 120 per cent in Chicago, 132 per cent in Detroit, 105 per cent in New York, 107 per cent in Norfolk, 101 per cent in Philadelphia, 102 per cent in Seattle. The figures show that the cost of food alone took 42 per cent of income in Baltimore, 44 per cent in Boston, 37 per cent in Chicago, 35 per cent in Detroit, 42 per cent in New York, 34 per cent in Norfolk, 40 per cent in Philadelphia, 33 per cent in Seattle.

YOUR X-RAY EQUIPMENT

is incomplete without the **Meyer Multoscope,** the only apparatus with self-contained overhead and aerial switch and many other exclusive features.





The Duplex Stereoscope, the only stereoscope allowing two observers to view at the same time, each having independent control over vertical, angular and focal adjustment.

The only stereoscope for instruction.

Send for special Bulletins if you need an up-to-date equipment.

THE WM. MEYER CO., 1648 N. Girard St., Chicago

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment.

Literature and samples from

RIEDEL & CO.
87 Thirty-fifth St.
Broklyn, N. Y.

One-Cent Hearty Breakfasts

Quaker Oats costs one cent per large dish. It forms almost the ideal food in balance and completeness.

One chop would cost about 12 times as much. And each egg costs some 4 or 5 times a dish of Quaker Oats.

Quaker Oats, in calory value, is twice as rich as round steak. Yet it costs about one-tenth what meat and egg foods cost.

Folks should remember in these high-cost days that the greatest food that grows still costs but little.

At this writing, this is what some necessary foods cost on the calory basis.

Cost per 1,000 calories	
Quaker Oats	5½c
Average Meats	45c
Hen's Eggs	60c
Chicken up to	$1.66

Quaker Oats

Extra-flavory flakes without extra price. They are flaked from queen grains only—just the rich, plump, flavory oats. We get but ten pounds from a bushel.

The Quaker Oats Company
Chicago

TRAINING NUTRITION WORKERS

An institute for the training of nutrition workers under the direction of Dr. William R. P. Emerson, under the auspices of the Elizabeth McCormick Memorial Fund, Chicago, has just been held. The class of thirty included dietitian school nurses, four physicians, two members of school boards, and various executives of child welfare organizations. Seven states were represented in the group. The work consisted in actual participation in dietitian work and included lectures, conferences, class discussions and reports.

INFANT MORTALITY CUT DOWN

The infant mortality rates for the twelve largest cities in the Birth Registration Area in the United States is compared in a recent bulletin for the five year period just past with a highly favorable showing for 1919. Seven of these cities showed decreases of from 8.5 to 23.4 per cent, while the highest increase was 3.6 per cent.

In New York City the death rate of infants under one year of age decreased 11 per cent, compared with 1918, and was 18 per cent below the 1915 figures.

In Philadelphia the decrease was 33 per cent from the previous year; in Cleveland 3 per cent, Baltimore 51 per cent, Detroit 4, Pittsburgh 25, Buffalo 11, Milwaukee 5, Washington 37, Cincinnati 16, and Minneapolis 8 per cent.

For the entire country Lackawanna, N. Y., showed the largest improvement, the decrease in infant mortality being 74 per thousand births.

HEALTH EDUCATION IN CHINA

The Joint Council on Health Education has as its purpose the task of inducing China to set her hygienic house in order. Lectures, lantern exhibitions, ingenious working models, and other means are used, says the *China Medical Journal*, to teach the Chinese people the elements of sanitation.

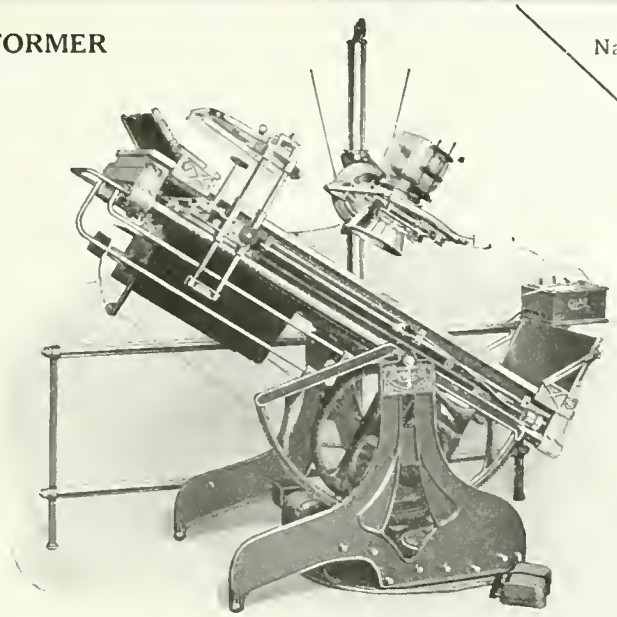
As elsewhere, the best results are attained in the schools among the children before opinions and habits are fixed. Traditions and superstitions need to be undermined. The difficulties of controlling epidemics are greatly increased when disease is generally believed to be a malignant demon which they must propitiate and fear to oppose. The willingness of people and officials to cooperate, so essential to a scientific campaign, depends upon an educational campaign directed against the superstitions concerning disease which prevail all over China.

NURSES WIN HIGHEST NURSING HONOR

Six American women, all of whom saw service in the World War, have just been awarded the Florence Nightingale Medal, the highest decoration of the whole nursing world. The distinction, which is bestowed by the International Committee of the Red Cross, Geneva, may be awarded only to one nurse in any nation, annually; thus these six women represent America's nursing roll of honor since the outbreak of the war in 1914. The terms under which the decoration was created in 1912 also provide that it be granted "only to trained nurses who may have especially distinguished themselves by great and exceptional devotion to the sick and wounded in peace or war."

These nurses, all of whom served with the American Red Cross, are Miss Helen Scott Hay, of Washington, D. C.; Miss Florence Merriam Johnson, of New York City; Miss Martha M. Russell, of Boulder, Colo.; Miss Linda K. Meirs, of Boston; Miss Alma E. Foerster, of Chicago; and Miss Mary E. Gladwin, of New York City.

TRANSFORMER TYPE TUBE TILT TABLE



A Complete X-Ray Plant for all Radiographic and Fluoroscopic Purposes

Name .....
St. .....
City .....
State .....
M. M.

Clinix

The Clinix in one of its many positions. Fill in coupon and send it to us for full descriptive literature.

Sold by Reliable Dealers

THE Campbell ELECTRIC CO. LYNN MASS

Supported by Factory Service

Ariston Baking Powders

There are two kinds of good baking powder—Cream of Tartar and Pure Phosphate. Each is a perfect leavening agent, and we make both in highest possible quality.

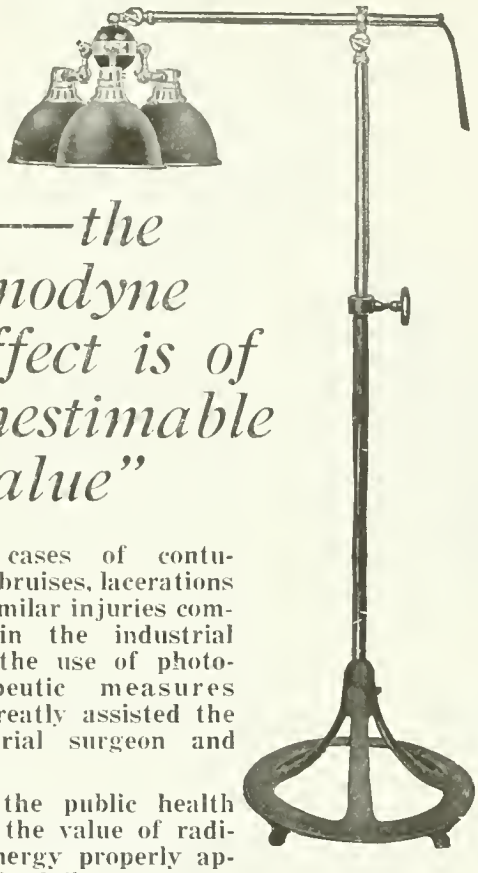
Pure Phosphate is a real food, of value in the vital organism and in the building of bone structure. This food value—the leavening qualities being the same—justifies our favoring, as we do, the Pure Phosphate Baking Powder, which also costs less.

Making both kinds and having no prejudice either way, our preference for the Pure Phosphate powder may be accepted as impartial and dependable. Equally impartial comparative tests have convinced many users, who no longer pay the higher price for the lower food value of Cream of Tartar Powders.

CALUMET TEA & COFFEE COMPANY

409-411 W. HURON ST. CHICAGO

"Dealers Direct with You."



"——the anodyne effect is of inestimable value"

In cases of contusions, bruises, lacerations and similar injuries common in the industrial field, the use of photo-therapeutic measures has greatly assisted the industrial surgeon and nurse.

To the public health nurse the value of radiant energy properly applied is daily apparent.

Thermolite
LIGHT AND HEAT INFUSER

Delivers Radiant Light and Heat in PARALLEL Rays
for the treatment of

Neuralgia	Rheumatism	Chronic Ulcers
Sprains	Neuritis	Local Infections
Lumbago	Arthritis	Dsymenorrhea

and many other conditions.

Because the rays are **parallel**, they bring quick relief from pain, reduce inflammation, and promote healing.

ThermoLite is supplied in two forms the **Triplex** for hospital clinics and office use, and **Simplex** (single lamp with or without stand) for home use.

H. G. McFaddin & Co.
39 Warren St., New York City

CHLORIN FOR VACATIONISTS

The Department of Health of the City of Chicago offered to all persons departing on vacation this year to furnish a small bottle of chlorin tablets to take with them for the purification of water in cottage or camp. The Health Commissioner explained that typhoid fever in Chicago was brought in from other points. Chicago has had one of the lowest typhoid fever rates of any large city in the world.

SHORTAGE OF DENTISTS IN ENGLAND

The inspection of conservative dentistry to the masses in England has led to a relative increase in the demand for dentists. Even if the dentists now available devoted their whole time to school work, they could not cope with the needs of the 5,750,000 school children while neglecting the rest of the population, and unfortunately, according to *The Lancet* of June 5, 1920, the British need for good dentistry, preventive and curative, has been allowed by popular ignorance and slackness to become a national reproach. The need of students of dentistry is urged, as well as the importance of the dentists as a valuable ally in the cause of preventive medicine.

CHILD WELFARE IN ONTARIO

The Provincial Board of Health of Ontario has undertaken a program for maternal and child welfare work of a highly progressive nature, according to the July issue of the *Public Health Journal*. Forty thousand dollars has been appropriated by the government for the purpose of establishing in each health district a public health nurse whose purpose it will be to carry on maternal and child welfare work as well as general public health nursing, under the supervision of a district nurse. Local community health centers will be organized and every effort possible will be made to stimulate local interest in health matters through traveling health exhibits and general educational material.

The general direction of the work will be in the hands of Miss Mary Power, with Miss Knox as assistant director. A supervisor, a pediatrician, and an expert dietitian will be added to the staff.

CLEVELAND ACADEMY ISSUES BULLETIN

The Academy of Medicine of Cleveland has undertaken the publication of a bulletin, the first number of which appeared in July, under the editorship of Guy M. Wells. The purpose of the publication is apparently not medical, but economic.

The first issue is devoted principally to attacks upon health insurance. As a sample of the kind of policy which apparently is to be pursued, we quote the following:

"The medical profession in dealing with the problem of compulsory state health insurance must adopt an aggressive constructive policy. To sit by and give free rein to the un-American Socialists, the anti-labor Bolshevists, and the impractical social uplifters (who have taken their thirty pieces of silver from the industrial interests of Germany and Great Britain), until they have fastened this Bismarckian scheme on Ohio, and then try to lock the door after the horse has been stolen, will be useless as it will be ludicrous."

Judicious comment is impossible upon such statements coming from an official bulletin of a reputable Academy of Medicine.

MALNUTRITION

The little Sutton girl was so weak it was thought she could not be raised. Immediately she was put on VIROL she began to mend. The larger photograph shows the remarkable improvement made on VIROL. These photographs and details were furnished by the attending physician.

Virol is a dependable nutrient and reconstructive in all wasting conditions, in tuberculosis, anaemia, gastric ulcer, rickets, scurvy and all strumous conditions.

Virol is rich in the food accessory substances known as vitamines, and especially in the fat soluble vitamine. Recent feeding experiments have shown the important part played by these vitamines not only in development and growth and in the prevention of rickets, but also in raising the power of resistance to diseases of bacterial origin.

Virol is composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars, 50c, $1.00 and $2.00.

Virol

Used in more than 2000 hospitals, sanatoria, and infant clinics in Great Britain

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

ICHTHYOL

MERCK

Genuine ICHTHYOL is obtainable only in bottles or tubes under the Merck seal

Anusol
HEMORRHOIDAL
Suppositories

There's been many a case reported in which Anusol Suppositories were used preparatory to Hemorrhoid operations—

Just to relieve pain and swelling—
And left nothing to operate for
Much to the surprise of the surgeon
And the delight of the patient.

Sample on request.

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX WHITE, RED AND BLACK LABEL AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

PLAGUE EXPERT URGES WAR ON RATS

Dr. Victor G. Heiser gave a lecture before the Post-Graduate Medical School and Hospital in New York August 9, in which he urged that steps be taken to prevent the entrance of the bubonic plague into this country. Declaring that the plague is almost exclusively a rat-borne disease, he urged that thorough fumigation of ships be made upon entrance to the ports with sulphur or gas from cyanide of potassium. "Building laws should be amended," he declared, "so as to require rat-proof construction of buildings and docks." On the economic side, Dr. Heiser pointed out the fact that the destruction of rats, aside from eliminating the danger from the plague, would save the United States over $200,000,000 a year.

Dr. Heiser is one of the best known plague experts, having had more than twenty years' experience in fighting the plague in different parts of the world. He was Director of Health in the Philippines for ten years, where he gained a wide reputation for the measures adopted in fighting the plague in those islands. He has just recently returned from Central and South America, where he has been studying the subject for the Rockefeller Foundation.

SHORTAGE OF NURSES

The grave shortage of nurses has caused a widespread campaign by hospitals, physicians and social workers to induce young women to enter the profession. Among those who are taking an active hand in the campaign is Bird S. Coler, Commissioner of Public Welfare in New York, and his co-workers in the Department.

"This scarcity of nurses," said Miss Agnes S. Ward, General Superintendent of Nurses in the Department, "is due primarily to changes brought about by the World War, which had the effect of bringing into close relationship the people of many nations, who were quick to recognize and appreciate the value of the nurse's services. Today they are feeling the need of nurses and they are beseeching us to send them nurses, that they may establish schools and institutions.

"As a result of the war the nurse's sphere of usefulness has increased tremendously. Public health centers are being established all over the country, and some 50,000 nurses are needed for this work alone. There are between twenty and thirty distinct lines of work in which nurses may engage.

"Big business has not been slow in recognizing the value of the trained nurse, and it is estimated that two-thirds of our factories, insurance companies, large stores and corporations employ one or more nurses. They have found them indispensable in emergencies."

"The big thing today," Miss Ward said, "is the desire to prevent illness, and this work is bearing fruitful results in schools, institutions, and homes where nurses are instructing young men and women and mothers in hygiene and in correct living. It means better living conditions, better citizens, and a more healthy and a more useful race.

"Many misconceptions exist concerning nursing as a career, and undoubtedly some of them have prevented young women from taking it up as a profession. Nurses have been pictured as overworked creatures with little time to themselves, leading more or less of a dog's life. Some of the harsh things which were said about it might have been true years ago, when as a profession it was in its early evolutionary stages, but certainly today nurses work no harder and enjoy the same freedom and independence as women in other vocations."

DIET IN INFANTILE DIARRHEA

Mead's Dextri-Maltose Nos. 1 and 2 are used by many pediatricians as constituents of feeding formulas presented in certain forms of diarrhea and for diet while recovering from diarrhea and for children predisposed to diarrhea.

Three Forms

No. 1. With 2% Sodium Chloride.

No. 2. Unsalted.

No. 3. Same as No. 2, plus Potassium Carbonate 2%.

An interesting discussion of corrective diet reflecting the most recent research in this field will be sent you for the asking, together with sample of Mead's Dextri-Maltose and full information regarding its constituents and indicated uses. If you are bringing babies through the trying "first year," write for it.

The Mead Johnson Policy

Mead's Dextri-Maltose is advertised only to the Medical Profession. No feeding directions accompany trade packages. Information regarding its use reaches the mother only by written instructions from her doctor on his own private prescription blank.

MEAD JOHNSON & CO., 303 St. Joseph Ave., Evansville, Ind.

Physical Conditioning

So many patients, especially women, lack the initiative to follow general advice regarding exercises, dietary, and personal hygiene. Physicians acquainted with my work are constantly referring these cases to me for physical and mental "conditioning."

A woman can often inspire her sex *to be* and *to do* and *hold her to this inspiration* by regular correspondence as men cannot.

Every pupil's requirements are studied individually, and each is directed according to her needs and her strength.

This cooperative work with the medical profession is giving results highly gratifying to both physicians and patients.

I shall be glad to assist you with patients who need conditioning through exercise, diet, breathing, correct poise, relaxation, reduction of flesh, or building of flesh.

Susanna Cocroft

624 Michigan Boulevard Chicago

TRENCH TUBES

IODINE

in the most convenient form for

INDUSTRIAL FIRST AID

Special Net Price

Any Quantity

$50 Per Thousand Delivered

DAVIS & GECK, INC.
PHYSIOLOGICAL CHEMISTS

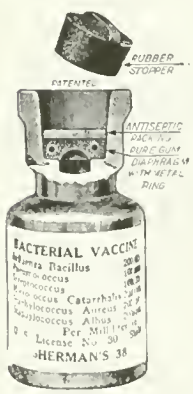
217-221 Duffield Street - Brooklyn, N.Y., U.S.A.

Notice

SHERMAN'S VACCINES

Are now supplied in a new 10 mil. (C. C.) container

This package has many superior features which assure asepsis, prevent leakage and faciliate the removal of contents. It is constructed on the well known Sherman principle.



The vial is amply strong which prevents breakage so frequent with shell vials.

We are exclusive and pioneer producers of Bacterial Vaccines. Originators of the aseptic bulk package. Pioneer in elucidation, experimentation and clinical demonstration.

10 Mil. (c.c.)

Twenty Preparations.

Beyond the experimental stage.

Millions of doses have been administered.

The largest producers of Stock and Autogenous Bacterial Vaccines.

MANUFACTURER OF BACTERIAL VACCINES
G. H. SHERMAN, M.D.
Detroit, Mich. U.S.A.

"Sherman's Vaccines are dependable Antigens."

HOUSING CRISIS IN NEW YORK

Approximately $560,000,000 must be invested in the construction of apartments in New York City to overcome its present housing shortage, in the opinion of the Mayor's Housing Conference Committee, called to help solve the housing crisis. The conference brought together representatives of the insurance companies and banks for the purpose of securing pledges of loans upon housing projects. So critical has the situation become that the Committee has announced that it will ask the State Legislature and the Board of Estimate to stop construction on buildings considered non-essential, including office buildings. Proposals have also been made to exempt new buildings from taxation. In the month of July permits were granted in New York for 115 garages and one apartment.

POVERTY NOT SOLE CAUSE OF MALNUTRITION

In an address before the Tuberculosis Association of Rochester, N. Y., Dr. William R. P. Emerson, of Boston, declared that investigations made in Boston, New York, Chicago and other large cities show that the physical unfitness of children is not solely the result of poverty, heredity, or some obscure disease, but is due to physical deficiencies, lack of home control, over-fatigue, improper food habits and improper health habits. Dr. Emerson declared himself in favor of school lunches at cost, or below cost to those who cannot pay, but he did not believe that the problem of physical unfitness of children could be solved by the provision of free lunches. He advocated the organization of children into nutrition classes in which groups of children meet once a week to be weighed and to have their health progress checked up by a nutrition expert who will give them a thorough education in health principles.

ADEQUATE ISOLATION HOSPITALS

Many factors need to be considered, says the *Lancet* of March 20, 1920, in arriving at the needs of a given community in isolation hospital accommodation, the most important of which are: the character of the district, whether urban or rural; the rate of increase of population; the housing and habits of a people; and the amount of intercourse with other places from which infectious disease may be introduced. Hospital accommodation should be provided for cases of scarlet fever, diphtheria, enteric fever, and cerebrospinal fever. For these four diseases one bed for every thousand inhabitants will not be excessive, but it will not provide for epidemic conditions.

To isolate measles or whooping-cough many more beds than this estimate will be required. If pulmonary tuberculosis is included, the needs of each district will require a separate estimate, taking account of all factors. The cost incurred in isolating small-pox may be regarded as the price the public has to pay for what is known as conscientious objection to vaccination. The site of a small-pox isolation hospital should always be sufficiently large to admit of rapid extension in case of necessity.

STUDY HEALTH SERVICE IN BRAZIL

A commission has been granted Dr. A. Neiva, chief of the Public Health Service of the State of St. Paulo, Brazil, for the study of the organization of the Public Health Service in Japan and in the United States, and also of the prophylaxis of leprosy in Norway, the Philippines and Hawaii.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2 OCTOBER 1920 Number 10

HEALTH INTERPRETATION

THE new organization of medical service along the lines indicated by the development of the past two years points clearly toward group practice, at least for the purpose of consultative medical service, and toward making the existing hospitals and clinics more and more the center of the medical life of the areas in which they are located. The attention that has been paid during the past few years to maternal and infant welfare, to the medical supervision of schools, and especially to the percentage of remediable defects exhibited by the adult manhood of the United States in the physical examinations made during the period of the war, all go to show medical care to be needed by a large proportion of our population who are not getting it. The call for an extension of service is apparent at present and will become more urgent as an enlightened public opinion senses the need and demands early measures of prevention instead of corrections for the end results of disease.

A statement of the need of bringing universal service to people would fall short of its purpose if it did not include a study of the agencies now in the field, for out of the more effective organization of present agencies may we hope to bring the service of the physicians to all who are in need of it, to provide diagnostic facilities where they are inadequate or lacking, and to furnish the intermediary social service to make curative and preventive measures effectual. To what extent are we organized to meet the exigencies of the situation? Will a mere extension of present agencies cover the field? Is there wasteful duplication of effort? On what basis can our organizations get together for more effective team work? Some of these questions will be answered in a series of articles appearing in successive issues of MODERN MEDICINE on the more important national agencies for medical service and relief. The first of the series, in the September issue, presented the work of the Child Health Organization, over the signature of L. Emmett Holt, M.D. On another page of this issue appears the story of "A League for Health," by Canby Dunn, of the League of Red Cross Societies, Geneva Switzerland. The enlarged program of the National Tuberculosis Association will be presented by Philip P. Jacobs, assistant secretary of the Association. Future issues will contain papers by E. A. Peterson, director of the American Red Cross, on what this organization is and what it does; by J. Middleton Martin, county medical officer of health, Gloucester, Eng., on the Gloucestershire scheme for the extension of medical services; by Ella Phillips Crandall on National Organization for Public Health Nursing. Later papers will follow on the prevention and control of cancer, on the correction of postural defects, and on other coordinated efforts both under way and projected, all significant of the present trend toward a better organization of the social machinery for relief. S. P. M.

ABDICATING MEDICAL LEADERSHIP

THE attention of the scientific leaders of medicine should be called to a condition which is prevailing to an increased extent in some parts of the country: namely, the abdication of leadership in public matters into the hands of men who do not properly uphold the high ideals and the dignity of the medical profession. It is altogether too common to find the physicians represented by

spokesmen who are violent in their attacks upon their opponents in matters wherein their opponents are as likely to be actuated by high motives as is the medical profession itself. To read some of the attacks upon the advocates of health insurance by self-appointed leaders of the medical profession tries the patience of any fair-minded person.

In a recent editorial in the *Survey* on the subject of "Doctors and Health Insurance" appears the following statement which should be weighed by the real leaders of the medical profession: "That part of the medical profession which is hostile to health insurance is very badly served by some of its spokesmen," says the editorial.

"Physicians are proverbially gentlemen. They are public spirited. They are the first servants of humanity, responsible to their conscience and amenable to the high ethics of their profession. They are law-abiding and respecting. They do not work for filthy lucre, but for the satisfaction of preserving life and safeguarding health. They are the very salt of the earth.

"But in the new counterfeit presentment which their self-appointed artists have drawn for us, they are none of these things. They have gone into politics, not to secure pure milk, better housing, or an efficient health department, as it is their noble tradition to have done so often; but to defeat excellent members of the legislature for having voted for health insurance. They are after power, not in order to serve, but in order to protect their pocketbooks. Like Britons, they never, never will be slaves.

"If the state enacts laws providing for the distribution of the costs of sickness—although this is an economic and not a medical question at all —they will refuse to practise medicine. They do not have to care for the sick—no, sir! they will go into business or practise law. Better still, they will go into politics now and defeat every candidate even of their own party who has anything whatever to do with extending the insurance principle to sickness.

"They don't believe in workmen's compensation either. They were fooled that time, but never again! What does it matter that industry is creating a sickness disability every day for which it does not provide financially? Not workingmen, but business men and investors are the better paying clients. Therefore, let us become the tools of exploiting employers; and try to persuade workingmen that they are better off in a chaotic, anarchistic, individualistic practice of medicine than in one which is organized, socialized, and modernized. Let us insinuate that these pestiferous intermeddlers have a sinister motive. They are probably chiropractors or osteopaths in disguise. At any rate there is a 'nigger in the wood pile' somewhere.

"This is not our caricature. It is that which the medical profession are allowing physicians presumably in good standing not a thousand miles from the New York Academy of Medicine to draw of present-day physicians."

The appeal of this editorial is for straighter thinking and better leadership than that which evidences itself at public hearings on this question and others when the interests of the medical profession are at stake. It is a plea for the doctors to condemn "obstructive, dog-in-the-manger, pettifogging tactics."

Any one may be opposed to health insurance for a variety of reasons and any one may favor health insurance for a variety of reasons. The attempt of the self-appointed spokesmen to label everything with which they disagree as un-American reacts against real medical leadership. Public issues must in the long run be settled by reason and not by violent talk.

PHYSICIANS CONFER WITH SAFETY COUNCIL

IT IS a good omen when a body of such live and competent men, all leaders in their several fields, come together in conference, as was the case in the meeting which convened September 27 to October 1, in Milwaukee.

The papers presented were such as to impress everyone of the desire of these men to understand the psychology of the times, to find through the agencies of safety and medical service those contacts which make for mutual good feeling, and through such service to break down the barriers of distrust which too often exist between the management and the men.

Especially pertinent in this connection were the addresses of the representatives of the American Association of Industrial Physicians. The medical service of industry is not to be isolated from the preventive health work of the community, of which it is a vital part and from which it differs only in a few added special problems. Industrial surgery is a specialty as important as any other, and calls for the utmost skill and judgment. The toxicology of industry is an urgent and alluring field, and one calling for research workers. Medicine in industry requires right-minded physicians of executive ability, men of skill and fine social qualities, and it is largely through the leadership of such men that better relations are to be developed and energetic, successful, and growing communities made to replace the apathy, ill health, and discontent which obtain in many industrial communities today.

HEADS AMERICAN PUBLIC HEALTH ASSOCIATION

THE newly elected president of the American Public Health Association, Mazyck Porcher Ravenel, M.D., brings to that office the technic of a skilled bacteriologist, the acumen of a man of letters, and the ripe judgment of long professional experience. He was born in Pendleton, S. C. He graduated from the University of the South in 1881, receiving his degree of Doctor of Medicine in 1884. This was followed by study in the Pasteur Institute of Paris, the Hygienic Institute of the University of Halle, and the Maragliano Institute of Genoa, Italy. He was for some years chief of laboratories of the Henry Phipps Institute, and later held the chair of bacteriology at Wisconsin. He was director of the State Hygienic Laboratory of Wisconsin from 1908 to 1914. His work at the Henry Phipps Institute was for some time directed toward the study, treatment and prevention of tuberculosis. He is now connected with the University of Missouri. His research work has been varied and his published work covers many bacteriological subjects, notably tuberculosis and rabies.

Mazyck Porcher Ravenel, M.D., newly elected president of the American Public Health Association.

AMERICAN PUBLIC HEALTH ASSOCIATION

NEITHER the extreme western location of the conference meeting place, nor the recent advance in railroad transportation had an unfavorable effect on the attendance of the 49th annual conference of the American Public Health Association held in San Francisco, September 13 to 17. The smaller number of representatives from the Atlantic seaboard was more than made up by the large number of public health nurses, social workers and other visitors from the Pacific coast who attended the various sessions.

Dr. W. S. Rankin's presidential address, delivered before one of the largest gatherings ever assembled at the Association's meetings, emphasized very forcefully the need for a national popular health journal, also the importance of bringing about an early coordination of national health agencies both private and official. While at a previous meeting Dr. Vincent of the Rockefeller Foundation referred to the fifty-seven varieties of health organizations, Dr. Rankin stated that there are almost as many health agencies as there were causes of death.

Perhaps the most exhaustive discussion of the whole conference were the splendid and masterly addresses on the relative function of official and non-official health agencies as presented by Dr. Haven Emerson from the viewpoint of the official agency, and Dr. Charles J. Hatfield from that of the non-official agency. The marked similarity of opinion expressed by Dr. Emerson and Dr. Hatfield is very significant, both emphasizing the need for coordination of private health activities, at the same time fully appreciating the value of these voluntary agencies in health research, education, and demonstration. One important point brought out in this discussion was that the work of the private health agency, to be most effective, must be handled separately from that of the official health department, though of course in close cooperation with the latter body.

State and local health officers were particularly interested in the symposium on Bubonic Plague, which included a historical outline of the disease and methods for its detection, diagnosis, and control. The special sections and joint meetings were full of live, helpful papers and the standing and special committee reports were well received. Symposiums on food factory sanitation, narcotic drug control, and infant mortality were well attended. Public health nurses found special interest in the child hygiene and social sections.

PURPOSES OF THE LEAGUE FOR HEALTH*

By CANBY DUNN, Department of Medical Information, the League of Red Cross Societies, Geneva, Switzerland

MAN does not die. He kills himself. This maxim is unfortunately almost as true today as is was when it was voiced by Seneca nearly two thousand years ago. In every country there is an enormous amount of disease and misery which could be prevented or greatly reduced by proper hygienic measures; and in some countries disease, following upon the footsteps of war, has reached such proportions that it constitutes a direct menace to the health and future well-being of the whole world.

Resistance is Encountered

Public health authorities have long been cognizant of this condition. Their problem has been to get the people, themselves, interested; and sometimes they have wondered whether the statement of a brilliantly cynical scholar, "The capacity of the human mind for resisting the introduction of useful knowledge is beyond belief," might not be literally true.

Yet today there is such an interest in public health as there seldom, if ever, has been before.

It took the war, throwing down man's structure of organized peaceful life as though it were a house of cards, maiming and destroying the fittest of the world's youth, and piling up a burden of debt and reconstruction for future generations, thoroughly to awaken mankind to the size of the handicap, in the shape of preventable disease, under which it had been laboring.

As the war ended and civilization, so to speak, set up and began to take stock of the wreckage, it saw clearly that in order to carry on it would need the efforts of every available person. It could never replace the millions of lives lost in the conflict, but it wondered whether it could not in some way make up for them by saving the millions of lives which disease in the ordinary course of events would surely claim. England, for instance, lost through sickness in 1916 the equivalent of 243,000 years of productive work. Could not this formidable figure be greatly lowered? Could not the United States do something about the 630,000 annual deaths from diseases regarded as preventable, and about its estimated annual wage loss from sickness of $500,000,000? Could not countries less well equipped to deal with disease—and which consequently would show, if statistics could be obtained, an even more impressive picture—be aided?

INTERNATIONAL ASPECTS OF PUBLIC HEALTH

As the activities of the several agencies for the improvement of public health conditions, both local and general, extend, it is more and more apparent that the field of one cannot be definitely delimited from that of another and some working basis of common interest becomes an ultimate necessity.

Disease itself does not respect political boundaries and if health work is to evolve more than temporary or palliative effort, the unhygienic centers which radiate disease must be searched out everywhere, and their noisome conditions changed.

The leading medical men of France, Great Britain, Italy, Japan, and the United States thought that all of these questions could be answered affirmatively. There were already in existence in many nations Red Cross organizations which had done yeoman work during the war in attempting to preserve life when the whole bent of the world seemed to be toward its destruction: they, too, felt that it was time to inaugurate a concerted attack on disease.

Accordingly, on April 1, 1919, on the invitation of the Committee of Red Cross Societies, a medical conference, numbering among its delegates some of the most distinguished medical men of the world, met at Cannes, France, and organized the League of Red Cross Societies.

Plan Basic Medical Program

This League's work for health is carried out along three broad lines: the stimulation of national Red Cross Societies; the direct collection and dissemination of health information; and the provision of a means of coordinating relief work undertaken on an international scale.

The Cannes Conference promulgated thirteen resolutions, the realization of which should be the basic medical program of the League of Red Cross Societies. These comprised a scheme of child welfare work; an endorsement of public health legislation and administration; the standardization of vital statistics; scientific investigation in hygiene and sanitary fields; the establishment of public health laboratories; and the development of pub-

*The second of a series of articles on National Health Organizations prepared for the pages of Modern Medicine.

lic health nursing. The prevention and control of tuberculosis, of malaria and of venereal diseases was outlined, as well as were plans for educational propaganda, town and city planning, the establishment of health centers, and the training of the children in hygiene. An attack on the typhus epidemic in Poland was recommended as an emergency measure.

It has been slightly over a year since the above program was laid down, and a barely twelve-month since the headquarters of the League of Red Cross Societies was established at Geneva. In that period thirty-one national Red Cross Societies have affiliated themselves with the League; the foundations for carrying out the League's plans have been solidly laid, both as regards personnel and definite outlines of work to be pursued; and several constructive measures have already been undertaken.

A medical commission was formed and sent to Poland on August 14, 1919, and a month later it rendered its report. This finding demonstrated so graphically the great extent of Poland's needs that Sir David Henderson, director general of the League of Red Cross Societies, pointed out that the situation in Poland seemed to demand governmental action on a scale on which neither the League nor national Red Cross societies were able to proceed. Not only in Poland proper was there need for assistance in the fight against the infectious diseases of which typhus headed the list; it was essential that some means be devised of checking the continued introduction of disease by refugees crossing the eastern frontier.

The report of the investigating commission was presented to the League of Nations and to the Supreme Economic Council, with the request that all possible assistance be given. Meanwhile, the appeal of the League of Red Cross Societies drew from the Red Cross societies of a dozen nations generous donations of money and materials for the relief of Poland. The Office International d'Hygiène, of Paris, to which a copy of this report was sent, gave its full accord to the recommendation of the League of Red Cross Societies in the matter.

Among the representatives of the League of Red Cross Societies in Poland at present are Mr. William C. Boyden, as commissioner, and Colonel Harry A. Shaw, as medical representative. These officials, with the aid of a medical staff, are prepared to carry on in cooperation with the Polish Government an extensive campaign against typhus and other infectious diseases. This plan includes disinfection of persons, of buildings, of railway coaches and other vehicles of transportation; the establishment of disinfecting stations; the establishment and operation of hospitals, the securing of sanitary personnel, and the maintenance of an educational campaign. The application of these measures on a large scale awaits the action of the League of Nations in furnishing the necessary money and material.

With a staff of seven other scientists, who were recently also in Poland for the League of Red Cross Societies, Dr. S. Burt Wolbach, of Harvard University, is conducting investigations regarding the etiology of typhus, with the ultimate hope that new knowledge regarding its prevention by vaccination and its treatment by serum-therapy may be obtained.

Many national Red Cross societies continue to give freely for the relief of Poland; but it must not be forgotten that the situation there calls for aid on a greater scale than can be expected from any voluntary relief agencies.

Furnish Authoritative Data

It is the second of the three lines of activity of the League of Red Cross Societies which necessarily brings it into the closest touch with the public. The collection and dissemination of medical information is carried on by the General Medical Department, which is subdivided into eleven other departments.

The Department of Medical Information, of which Dr. Thomas R. Brown is the chief, represents an endeavor to keep abreast of the latest contributions to medical science, as well as to compile authoritative data on numerous medical subjects. To take a concrete illustration of this work, let us suppose that a doctor in St. Louis or a hospital in Buenos Aires or a relief nurse in Armenia desires information upon some scientific matter concerning which there is no authoritative opinion immediately at hand. The doctor, perhaps, wishes to know something concerning the rôle of vitamines in nutrition; the hospital may desire information concerning the etiology of typhus; the nurse may be in urgent need of enlightment on some point of nursing procedure.

Imagine, then, that three letters are despatched to the Department of Medical Information. They arrive and are turned over to specialists in the fields to which they apply. These specialists collect the desired information and immediately send it to the questioners. There is, of course, no charge for this service.

At present information can be at once secured on the communicable diseases, such as typhoid, typhus, yellow fever, and influenza, tuberculosis, venereal diseases; malaria, child welfare and nutrition, nursing, and sanitation and hygiene—including hygiene and vital statistics.

A very important part of the service of the Department of Medical Information consists in furnishing, in English, French, Italian, or Spanish, as may be desired, digests of the recent literature upon any subject within the scope of the above list. Information is available upon the present state of knowledge in regard to any question of public health, determined by the literature and by the opinion of the experts of the League of Red Cross Societies. Vital statistics, so far as they are available, either as regards the prevalence of disease or the state of health in different localities, and information as regards the present and future activities of the League in public health matters may also be had for the asking.

Another comprehensive undertaking of this department is the publication of the *International Journal of Public Health*. This is strictly a scientific journal, and is published simultaneously in four languages—the first attempt, so far as is known, to reach in their own tongues such a varied circle of readers with a scientific publication. The first number of this journal, which for the present will be issued bi-monthly, has just appeared, and counts among its contributors men who are internationally known and honored as scientists. It also contains reviews of recent literature in public health fields; a general survey of the health of the world, and notes on the scientific work carried on by the League.

Too much emphasis cannot be placed upon the fact that the Department of Medical Information is not only willing, but anxious, to furnish medical data to all who may desire it. Its service is as concrete and definite as would be that of an encyclopedia which was daily being revised and kept absolutely abreast of all developments in its particular field.

In the future, moreover, in accordance with the recommendations of the Cannes Conference, the League hopes to establish a hygienic laboratory, where new methods of controlling infectious diseases may be demonstrated; and a museum, where new sanitary appliances and apparatus may be exhibited.

Included in the General Medical Department are departments of child welfare, of tuberculosis, of communicable diseases, of nursing, of sanitation, of vital statistics, of social hygiene, of malaria and of industrial hygiene; and a library. To this Department are attached a Counselor of International Public Health, Professor Rocco Santoliquido; and an adviser in Public Health, Surgeon General Hugh S. Cumming, of the United States Public Health Service.

The Child Welfare Department has prepared a scheme of a model child welfare unit which has been printed in booklet form and which is available for all who wish it. A resolution of the General Council of the League, which convened at Geneva in March, urged that such a unit be organized and sent immediately to that country whose national Red Cross Society would be willing gradually to take up the operation of this unit, and eventually to duplicate its activities, personnel, and material. The Department of Tuberculosis, likewise, has prepared a report upon an anti-tuberculosis demonstration; and the General Council also recommended that a practical demonstration of the work which such a unit can do be undertaken in some country where no such organization now exists. These recommendations were approved by the League's Medical Advisory Board, which met July 5-8. Another task which the Department of Tuberculosis has undertaken is the collection of information concerning the tuberculosis situation in various countries of the world.

The most important activity of the Department of Communicable Diseases at this time relates to Poland and the anti-typhus work being carried on there.

The Department of Nursing has organized a course in public health nursing to be given in the King's College for women of the University of London during the scholastic year of 1920-21. This course, for which ten free scholarships have been offered by the League of Red Cross Societies, has been established in order that young women of various countries may be given training in public health nursing and returned to their own countries as pioneers in this work.

"The establishment and maintenance of a clean environment for human beings" is the motto of the Department of Sanitation, which is undertaking field surveys of sanitary conditions, educational work, and the stimulation of national Red Cross agencies to carry on local endeavors for the improvement of sanitation. This Department likewise is prepared to assist and encourage the foundation of a practical training school for sanitary engineers; and it must be remembered that many eastern European countries present the most urgent need for sanitary improvement and the attention of trained sanitary personnel.

The Department of Vital Statistics is attempting gradually to have the vital statistics of all countries standardized and tabulated in such forms that they will be easily comparable. Adequate statistics now are lacking for many countries; and the Department of Vital Statistics will endeavor to impress upon these countries the value of birth and death registration, of the

notification of infectious diseases, and of improved systems of death registration. Coincidentally with its efforts for better methods in the collection of vital records, this Department also is gathering and tabulating for the use of the League of Red Cross Societies a vast amount of statistical material.

The widespread interest now being manifested in the field of social hygiene has been met by the creation of a Department of Social Hygiene which is preparing for presentation to all national Red Cross societies a digest of the laws and schemes now existing in all countries for combating venereal diseases, and which also is attempting to stimulate social hygiene work in various countries.

The Department of Malaria has only recently been organized. However, with the knowledge that malaria is largely a preventable disease, and that it really pays better to take anti-malaria measures than to continue to treat cases of the disease as they arise, as a basis to work upon this Department has already begun the stimulation of anti-malaria campaigns.

The Department of Industrial Hygiene has not yet been placed actively in operation, the reason being that it has been thought better to await the action of the League of Nations on this subject.

Defend Frontier from Disease

At the March meeting of the League's General Council the health of eastern Europe—and that means also the health of the rest of the Continent—was considered in the recommendation for the establishment of a sanitary line of defense from the North to the South at the Russian frontiers. Typhus cannot be satisfactorily dealt with until the streams of typhus stricken refugees which come from Russia are prevented from continually reintroducing the disease into the central European states. Rigid inspection at the frontiers is necessary also, for the prevention of the introduction of other communicable diseases.

The medical recommendations made by the Council of the League are passed upon by the Medical Advisory Board of the League, a body of fifteen distinguished scientists from eight nations, which held its first meeting at Geneva on July 5.

The League of Red Cross Societies has established cooperative relationship with the Office International d'Hygiène Publique (International Office of Public Health), which is particularly concerned wth the international aspect of public health. The relationship will continue after the international office has become a part of the new International Health Organization of the League of Nations; and, inasmuch as the purposes of the League of Red Cross Societies are recognized by the League of Nations covenant, it will be seen that the connection between the two leagues is of the most beneficial sort.

The League of Red Cross Societies is not out to reform the world. It is non-sectarian, non-political, and non-governmental. Its mission is to improve the general health of the world, whether this be done through its member Red Cross societies, or through its own efforts. Its work is planned absolutely on a scientific basis; and the caliber of the men who propose to pass upon its plans, who contribute to its scientific journal, and who indorse and assist its work, is a sufficient guarantee of the soundness of the planning.

There are no bigger names in the medical world today than those of many of the men who are active in some phase or other of the work of the League of Red Cross Societies.

The world is tired—tired of war, tired of feverish propaganda, tired of the hundreds of panaceas and nostrums which are proposed to make it over. It wants to get back to work and it wants to conserve every life that it can; and it is willing to listen to people who can give it sound advice on the attainment of either ideal.

It is here that the symbol of the Red Cross is happily situated. Since its adoption, it has stood above reproach; and the last war fixed it firmly in the popular mind as the emblem of unselfish devotion. Not in the least unmindful of the heritage with which it has begun its career, the League of Red Cross Societies hopes to be able to show the world how to be happier and healthier in its new era of peace.

TWO CHILD WELFARE SCHEMES

An interesting comparison is drawn by G. H. G. Dundas in the *Edinburgh Medical Journal* on the child welfare schemes in Ramsgate, work by a volunteer agency, and that in Leith, which is wholly municipal. "In Ramsgate, educative methods are in predominance; in Leith, curative. In both boroughs the scheme had as its foundation the Notification of Births Act; the standard of one health visitor to every 500 births a year prevails; uniformity of teaching by members of the staff is emphasized; prenatal work is included in the scheme, as are also nursing mothers and children under five years of age; notified cases of measles and whooping cough are visited—by the medical officer to the scheme if the case is notified by the mother, and by the health officer if the case is notified by a doctor. No great hopes are entertained of preventing the spread of measles and whooping cough by notification and visiting, but great hopes are entertained of preventing sequelæ and deaths."

A good workman at his best makes a poor doctor. Do not trust him. Go to the doctor, says the National Safety Council.

INFANT WELFARE AFFECTED BY CLASS DISTINCTIONS AND NATIONAL TRAITS

By A. LEVINSON, Chicago

The application of medical science to physical betterment emphasizes individualistic studies and special methods. Generalizations are possible, however, and collective methods may be called for.

Hereditary factors and the traditional background constitute an integral part of the conditions which affect infant welfare work. Specially trained and carefully adapted workers are essential to successful service.

To such professional skill must be added the social acumen which perceives the varied inheritance of the American people and seeks to preserve all that is constructive in its tendency.

THOSE who handle large groups of mothers and children study their problems not only individually but also collectively and after an extensive experience it becomes possible to group the mothers according to classes and nationalities. Through a varied experience in infant welfare work among mothers of different classes and various nationalities it has been my good fortune to come into contact with women and children representing many lands and many tongues and an opportunity was thus afforded to observe the different customs and characteristics of the people and to come face to face with many interesting problems that confronted the mothers who brought their children to the clinics.

Early in my experience I learned that every mother, like every child, is a problem unto herself. Many are the problems of the mother, especially the young mother, and many are the problems of the child, especially the young child. Some mothers, however, by virtue of their previous history and their present circumstances offer fewer difficulties to the infant welfare station and its attending physician and nurse than do others.

Once in a while one encounters a very rich mother who does not want to nurse her baby because it interferes with her social duties; but this type of mother, though sadly in need of infant welfare instruction, does not frequent the infant welfare stations, and her problem belongs to the realm of the family physician with a lucrative practice who usually knows, or soon learns to know, just how to handle the rich and "fashionable" mother.

The average American or foreign mother is anxious to nurse her baby. Aside from finding it easier than to prepare six or seven bottles a day, she has learned that mother's milk is best for the babe. This constantly growing knowledge of the value of breast milk tends to lessen the difficulties of the mothers and leaves the physician, nurse, and social worker only the task of regulating the feeding of the infant and of suggesting the necessary hygienic measures.

The biggest problem, however, is presented by the poor mother who is anxious to nurse her child but who cannot for financial reasons, for she must go out of the home to add to the family livelihood. Cases such as these call for good judgment and for advice particularly adapted to the individual case in question. In some instances it may be advisable to obtain assistance for the mother from social agencies so that the mother may be enabled to continue to nurse her baby.

In other cases it is best to have the mother nurse her infant twice a day, giving it the bottle at other times. Some mothers solve this problem for themselves by procuring housework near enough to their homes to make it possible for them to nurse their infants every three or four hours. Work of this type, however, is not easily obtainable.

Artificially fed infants present not only problems of infant feeding but, also, problems of a social nature peculiar to various classes of society. These difficulties constantly confront the physician, nurse, and social worker who in various capacities are called on to attend the mother and child. Any advice or suggestions given the mother must be guided by the question of expense. For instance, though the physician may know that certified milk is the purest substitute for mother's milk, it cannot always be recommended to the average mother because of the expense involved. The physician must, therefore, teach the mother how to make ordinary pasteurized milk serve the same purpose so that she may not be tempted to take matters into her own hands and feed her baby condensed milk because it is cheaper than fresh milk.

The same question of expense enters in the choice of a sugar for the baby's milk. The

different malt sugars on the market may be of value, but their price is often prohibitive for the poor mother. The mother should therefore be shown that she can use ordinary cane sugar with almost the same results. Not only in the matter of milk and sugar, but even in the question of a fruit juice must individual judgment be used. Orange juice may not be within the reach of every mother and again the physician must come to the aid of the mother and suggest a substitute fruit juice so that the child may not be deprived of a necessary antiscorbutic.

If the workers at the infant welfare station do not gain the full confidence of the mother the success of their efforts becomes greatly minimized. The mother may continue to visit the station, and yet she may not be carrying out the suggestions so necessary for her baby's welfare because the orders given are not within her means.

Race and Nationality Are Factors

The mothers who frequent the infant welfare stations can be differentiated not only by the strata of society from which they come, but also by the customs and characteristics of the race or nationality they represent. In spite of the cosmopolitan character of these clinics in the large cities the mothers who attend them with their babies may be grouped according to the degree of cooperation they give the physician and nurse, and this factor in turn is found to bear a direct relation to race and nationality. My own experience in infant welfare work afforded contact with three types of mothers from the standpoint of race and nationality: the American (white) mother, the colored mother, and the mother of foreign birth.

The American Mother

The average American mother presents no special problems in connection with infant welfare work except those peculiar to social conditions. Her acquaintance with the infant welfare station often begins when something goes wrong with the baby, when it is irritable, when it vomits, or when it does not gain. At this crisis an "experienced" neighbor usually steps in and advises weaning. Sometimes it is even a doctor who advises taking the baby off the breast. It is in such cases that the mother frequently turns to the infant welfare station. It is here the infant welfare physician or nurse can do a great deal of good by saving the mother's milk for the baby and possibly saving thereby the baby for the mother. Generally speaking, the American mother can be depended upon to follow the instructions given her. Unlike the foreign mother, she has no special superstitions in connection with her babe. Her most flagrant offense lies in the direction of cathartics. She often offends in the matter of overphysicing her infant. However, if warned against the danger of establishing the "physic habit," she is less likely to offend again. The same is true with overfeeding.

The Colored Mother

The colored mother presents a number of special problems in connection with infant welfare. One of the most important problems is referable to the extreme youth of colored mothers, a great many of whom are only sixteen or seventeen years of age. In my own experience there were several only fifteen and a few as young as fourteen. Although some of these mothers did very well despite their extreme youth, one could hardly expect most of them to show great soundness of judgment or mature experience in dealing with their children. It is quite a common sight to behold a young colored woman of seventeen carrying one infant in her arms, and dragging another at her side. One such case, a mother seventeen years of age, gave a story of a child of twenty-two months, a premature babe of five months, and a miscarriage. Were it not for the colored grandmother, who plays a great rôle in such cases, it is very unlikely that more than a very few of the colored babies brought into the world would survive.

Another problem of great importance is the number of illegitimate children among the colored people. Society at the present time is not prepared to care for the illegitimate child if the father has escaped. If the mother could receive some form of support she would be able to take care of the child; receiving none, she must go out to work and board out her child. The child is left without a mother's care, and without breast milk. It is here that the grandmother often enters and saves the situation by taking care of the child. Fortunately, the fate of the mother of the illegitimate child, among the colored, is not so bad as among other peoples. She is not ostracized from society as is the case among other races, and this fact gives the mother a chance to readjust her life and in turn helps the child. The readjustment, however, is slow.

Housing An Important Factor

The housing conditions among the negroes are also a matter of import. This problem, which is acute among the poor of all peoples, is doubly so among the colored, for there is added to the poor housing conditions the lack of appreciation on the part of the average colored mother of the importance of good air and green grass.

Although rickets is prevalent among infants of other nationalities and races, it may be called the disease of the colored infant. It can be safely stated that from 95 to 98 per cent of colored infants suffer from rickets in one form or another. It is true that we have no sure cure for rickets. It develops in spite of all that can be done for the infants, whether they are given breast milk or cow's milk, whether they have cod liver oil or not, and whether or not they have fresh air. The fact remains, however, that rickets is influenced by various factors. The child who gets breast milk is not nearly so prone to have severe rickets as the child brought up on artificial feeding, and the infant who gets orange juice and cod liver oil is not nearly as rickety as the one without them. A knowledge of rickets is, therefore, necessary for good infant welfare work among the colored.

Traditions Affect Child Care

Of no small importance in connection with infant welfare work is the matter of tradition and superstition among colored women. As far as can be ascertained, many of these traditions have no background except superstition. The old calendar and the new calendar are very frequently referred to by the negro mother. A chain of allspice, a chain of Job's tears, a crumb of bread, a piece of asafetida, or a forepaw of a rabbit is frequently suspended from the infant's neck. Bathing in dishwater and in cabbage water is very frequently practised on the infants. A knowledge of these superstitions is valuable, however, not for the purpose of interfering with them, but to enable one to know which of these superstitions interfere with hygienic rules. Most of them do not interfere with good hygiene, and to advise against them merely serves to antagonize the mothers and results in lack of obedience on their part.

Mothers of Foreign Birth

In dealing with mothers of foreign birth one is at a distinct disadvantage if he does not understand the language they speak. If every physician, nurse, and social worker in a foreign district could understand the language of the people among whom they work, the results of infant welfare service among foreign mothers would be far better than they are at present. Attempts to meet this difficulty are being made by some infant welfare societies, who are beginning to assign foreign speaking physicians and nurses to work among their own people.

The foreign mother, to a much greater degree than the native American mother, does not see the necessity of going to see a doctor or nurse with a well baby. The nurse or social worker, however, can do a great deal to educate the foreign mother in this direction by frequenting her home and pointing out the assistance the infant welfare station can be in maintaining the health of her babies.

The economic problem, which is a great factor in infant welfare work among the mothers of American birth, is much more acute among women of foreign birth. Several years are usually required for an immigrant family to adjust itself economically. Many foreign mothers have to assist in the earning of a livelihood and they cannot, therefore, devote their entire time to their children. This is most common among Polish and Bohemian mothers. It is less frequent among Italian mothers, and very rare among Jewish mothers.

A great problem among the foreign born is the large families most of them have. The foreign born do not practise birth control to any great extent. Six or seven children under the age of ten are not infrequently encountered in families whose wage earners make but a poor living, a condition which makes it doubly hard for the baby, who thus receives only a small share of the attention it needs.

Some Points of Contrast

In several respects the foreign mother presents some interesting contrasts to the American mother. She is bound by traditions that react on her baby. Italian mothers bandage their babies very tightly to straighten out their bones; Chinese mothers compress the feet of their babies to prevent them growing too large; Austrian mothers give their babies beer and wine to make them strong.

In the matter of clothing, the American and foreign mother stand at the two extremes. The average American mother, in her fear of overdressing the baby, dresses it in sheer, summer garments and thin cotton underwear the year around. To inure her baby to the cold, she takes it out for an airing even when the thermometer registers below zero. The foreign mother, on the other hand, in her fear of under clothing her baby, bundles it up in woolens and flannels and, to prevent it taking cold, she keeps it indoors with windows closed.

The foreign mother adds solids and semi-solids to her baby's diet at a very early age. I have seen babies as young as one month of age fed Zwieback, thus going to extremes, just as some American mothers go to the opposite extreme of withholding semi-solid food until their babies are eight or nine months of age.

In the matter of breast feeding, the foreign mother often makes a fault of a virtue. She nurses her baby faithfully enough but, as a rule, too frequently and over too long a period. Many foreign mothers nurse their babies up to the age of eighteen months or more. The reasons given for prolonged nursing are various. Many consider that it is to the best interest of the child; that if eight months of breast milk is good, eighteen months should be better; or, the breast feeding is continued because nursing the baby is easier than preparing bottles for it. No small proportion of the cases of protracted nursing is centered in the hope that it will serve as a preventive against conception.

The foreign mother can be rendered very amenable to instruction if she is treated with consideration and kindness. First of all, she must be understood. Most foreigners come from countries where the average citizen is afraid of an official, and many of the foreign mothers look upon the nurse or social worker, and even upon the physician, as government officials who come to make an investigation in order to punish them afterwards. The infant welfare worker among foreign born mothers must, therefore, first of all, try to remove the "official" fear idea. It gives way in a short time to sympathy, kindness, and understanding. As soon as the mother is convinced of the good intentions of those who come to advise and assist her in the health problems of her young, she can be depended upon not only to follow the instructions herself, but to spread her influence to her neighbors.

CHILD WELFARE WORK IN SOUTH AFRICA

A reviewer in the June issue of the *British Journal of Children's Diseases* reports interesting progress in child welfare work in South Africa. Subsequent to the disastrous epidemic of influenza all past public health legislation was consolidated in one Act and a Minister of Health appointed.

PEDIATRICS IN CHILD WELFARE

Pediatrics is but one special branch of the cause of child welfare, according to the *British Journal of Children's Diseases*, June, 1920, in reviewing the work of A. Dingwall Fordyce. The care of sick children must include (1) a more thorough and systematic training of medical students; (2) greater facilities for efficient treatment; and (3) better facilities for retaining health. A very important phase of the work depends upon improved housing and lighting, further development of play centers, kindergarten and day nurseries, and upon the stringent supervision of boarded-out children. One of the chief advantages to accrue from the development of child welfare centers, he emphasizes, is the extension of medical superintendence from the periods of disease and convalescence to times of health.

MAKING AMERICA SAFE FOR BABIES

IN order to test the value of a traveling health center for remote communities, the United States Children's Bureau has equipped and is sending out a big automobile truck as an up to date "well baby clinic." This child welfare "Special" is in charge of a government doctor and a nurse.

The big car halts at designated points and immediately

Underwood & Underwood.

All aboard for Healthy Town on the Child Welfare Special! One method to be used in making America safe for babies.

becomes the center of interest. As soon as its object is noised about, mothers begin to appear with their children. As its purpose is to keep well babies well, no medical aid is given, but thorough examinations are made to see if the babies are growing as they should. In addition, mothers are given advice and instructions as to how to properly care for their little ones.

This oral instruction is supplemented by a child welfare exhibit which travels with the special, and which is set up in a church or school house near the big car's parking place. While the mothers await their turns to have their children examined, they learn many things that are of advantage to them in the care of their babies. The exhibit consists of posters giving information which every mother should have, sample cribs, beds, a playing pen, screens, and bath utensils. Sample garments of the proper make and materials are pinned on a sheet which is attached to the wall.

Underwood & Underwood.

Child welfare exhibit which mothers are privileged to examine while awaiting their turns. Ocular proof of how things are done makes the doing easier.

Underwood & Underwood.

The nurse who travels with the "Special" is testing the sight of this wee miss, impaired vision being one of the most common defects found.

The spick and span whiteness of the interior of the car with its compact built-in equipment suggests the sanitary arrangement of a hospital operating room. Here the mothers bring their youngsters—the pudgy and the lean—and all are put through their paces to see whether or not anything is wrong. A record is made of the findings, and then detailed instructions are given to the mothers along the line of improvement in their methods of handling their babies, and of measures necessary to prevent disease.

The chief work of the "Special" is to call attention to defects, where they exist, in time for remedial measures to be effective. One of the most important examinations made is that of testing the eyes, and the nurse who travels with the special must be able to make these tests. Three-fourths of the 22,000,000 school children in the United States have health defects which are injurious to them as prospective citizens.

In some sections of the United States even though the last frontier has vanished, many babies are born and are growing up under pioneer conditions. In one of the western states an agent of the Children's Bureau discovered a territory 5,500 miles square where there was not a single telephone, and where most of the families lived more than twenty miles from a doctor—a distance made much longer by bad roads. In time it is hoped to by means of the "Special" to put medical attention in reach of every baby in these isolated districts.

Underwood & Underwood.

The "Special" will bring relief to thousands of Prairie Madonnas in their dugout homes.

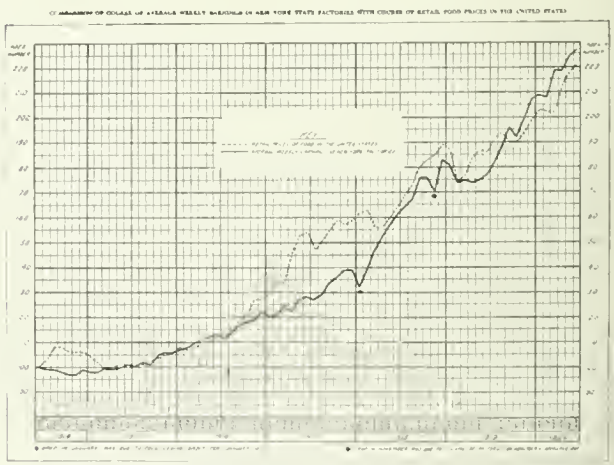
A MENTAL HYGIENE PROGRAM FOR NURSES

The nurse is a disciple of mental hygiene as well as medical hygiene, says Dr. William Barclay Terhune in the July issue of the *American Journal of Nursing*, arguing in favor of a mental hygiene program for nurses which would demand that all nurses receive, as a part of their fundamental training, psychiatric instruction associated with demonstrated clinical material. The pathfinders in psychiatry have carefully marked and described the way, so that whether they elect to enter this field through psychology, clinical psychiatry, psychiatric criminology, industrial psychiatry, or psychiatric social service, the educational way is open, the opportunities unlimited, and the potential usefulness of the nurse increased in every direction. No time should be wasted in theoretical study that does not offer clinical advantages in the subject.

In the universal training of nurses on the psychiatric phases of their work lies the hope of detection and correction of abnormal and unsocial tendencies before they become crystallized as an integral part of the character, and the possibility of training the handicapped so as to compensate for psychic difficulties.

Mental nursing is now almost wholly confined to private homes and mental hospitals, but there is no reason why general hospitals should not have active psychopathic services. Mental disease is practically the only form of illness barred from general hospitals, and such discrimination is unwarranted.

A COMPARISON OF PAY WITH PURCHASING POWER



This chart shows a graphic comparison of the average weekly earnings in New York state factories with the course of retail food prices in the United States. *Labor Market Bulletin*.

AMERICAN JOURNAL OF PUBLIC HEALTH

There is little doubt that most of the physicians in the United States desire a national department of health, stated Dr. Seale Harris in his presidential address before the American Medical Editors' Association in New Orleans. The present United States Public Health Service should be its nucleus. If any advanced legislation for public health is enacted within the next few years it is time that the organized medical profession organize for a systematic campaign. Public health is a business proposition. The medical men know the need and should take the foreground in presenting the matter to the people and to legislators. The August issue of the *American Journal of Public Health* presents the salient arguments on this subject made by Dr. Harris.

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., II, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

LEWIS J. POLLOCK, M.D., *Chicago*
Neurology, Psychiatry and Psychology

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

JOSEPH C. BOCK, C.E., Ph.D., *Milwaukee*
Physiological Chemistry

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

PSYCHOANALYSIS RESTATED

SEVERAL generally current notions in regard to psychoanalysis are proved fundamentally wrong by the authorized translation by G. Stanley Hall[1] of the lucid and simple statement of the tenets of psychoanalysts. Freud definitely urges against these generalizations of his statements which lose sight of the fact that all his observations are based on the study of a single group of nervous affections—the so-called transference neuroses. He rejects as far as possible the rôle of mentor; advice and guidance are not to be regarded as an integral part of analytic influence. "We are not reformers, only observers," he says; " . . . Our usefulness consists in replacing the unconscious by the conscious, in translating the unconscious into the conscious. . . . Where no suppression and no analogous process can be undone, there is no place for our therapy."

The limitations of the method are admitted with a frankness that bespeaks the honest and painstaking quality of his research. The structure of psychoanalysis so far is really only a superstructure, he says; the task remains to place it on its organic foundation. Psychoanalysis may not even be termed causal therapy, as would be the case if it were possible to influence these functions chemically instead of being compelled to employ the circuitous method of first finding the suppression and then removing the resistance by which the suppression is maintained, a result achieved by rousing a counter impulse to set over against the offensive impulse and thus inducing a normal psychologic struggle, possible of solution, which replaces the pathologic conflict of the neurotic. In the hands of Freud this method has been successful in a large number of forms of anxiety and compulsion neuroses, but its failure in cases less accessible leads him to express a doubt whether he has really understood all the conditions of success in other neuroses.

We are often able to see in maladjustments the element of compromise wish-fulfillment and are willing to concede the existence of processes of unconscious mentation which have a meaning that escapes exact science. The psychology of Freud is in line with leading schools of thought in seeking a dynamic conception of psychic phenomena. The whole nomenclature of mental science points to energy released or countered or pent up: impulses, stimuli, idea forces, resistances, conflict, being definite expressions of this trend. Associations are conditioned, mental sets are formed, reactions are predetermined and their relative intensity governed by the constitution and experience of the patient. It is even clear that we

1. Freud, Prof. Sigmund, LL.D.: A General Introduction to Psychoanalysis. Authorized translation by G. Stanley Hall. Boni & Liveright, New York, 1920.

forget through the same mechanism by which the memory is strengthened. Nothing is accidental. Dreams, unfulfilled desires, even haphazard thinking, furnish clews to personality distortions and their relationships; but it remains that much ambiguity attaches to the realm of the unconscious, and it does not seem essential to limit the inhibitory organizations of the materials of the unconscious to morbid processes of the libido. A broader interpretation might come closer to fulfilling the requirement of science that a solution must be universally true.

However, "preferences and dislikes are not the proper bases of scientific judgment" and the studies of Freud are distinctly illuminative. The early chapters on the psychology of errors and the mechanism of dreams elucidate much to account for the potentialities for perversion. He finds that all inclinations to perversion have their origin in childhood. He does not, however, find the remedy in childhood prophylaxis. The person cured of a neurosis by the laborious method of psychoanalysis becomes another person through a change of attitude,—a not insignificant accomplishment.

The process by which the child is said to fill "the gaps of individual truth by historic truth" is not so readily acceptable and the more or less arbitrary symbolism which all leads to the single interpretation that these "antiquities of human development" are resorted to as substitute satisfactions is not patent without research into a realm of psychology which constitutes a field in itself. From the viewpoint of the patient the whole matter turns on the social experience. In an unsatisfied person, turning away from reality and transforming all his wishes to an elaboration of imaginary desires and satisfactions easily points the way to neurosis. A social code may demand more sacrifices than it is worth, and in a given case such a neurosis may be the best adjustment possible under the circumstances.

Science and ethics become involved in the pursuit of the subject. The appearance of this text is highly opportune. The conversational discourses afford the best possible substitute for the lecture room, and the results of this study demonstrate anew the possibility of illuminating the processes of normal mentation through the painstaking analysis of abnormal psychology. S. P. M.

CHILD HYGIENISTS MEET

THE American Child Hygiene Association, previously known as the American Association for the study and Prevention of Infant Mortality has taken on new and broader activities with its new name. The Society no longer limits its activities to the prevention of infant mortality, but interests itself in the many problems of infancy and childhood from the prenatal period to that of adolescence.

The program of the annual meeting of the Society, to be held in St. Louis October 11-13, shows the extensive scope of the activities of the organization. The program will include a discussion of prenatal and maternal care, a round table talk on state and city divisions of child hygiene, a session on the problems of pre-school age and of adolescence, a presentation of rural health problems, a discussion of nursing and social work, of infant care, and a session on vital and social statistics. The discussions will be carried on by men and women vitally interested in child hygiene.

The Society is now publishing a monthly magazine, *Mother and Child*, devoted to the welfare of the mother and the child. The two issues that have thus far appeared are very commendable. They contain good reading matter couched in non-technical terms, which should appeal to physicians, nurses, and social workers, and even to the laity.

The activities of the Society during the last year, since the widening of its scope, have been very fruitful. It is hoped that the next meeting, which will mark the eleventh year of the organization's activity, will bring forth new and broader activities in the interests of the child.

STUDIES ON DIABETES MELLITUS

THE recent literature on diabetes mellitus is characterized by two distinct phases of activity, the one dealing with the disease as a chemical-pathological problem, and the other with the treatment of the individual patient. Allen[1] has contributed new studies in the pathological physiology of the disease on the basis of animal experimentation. Mosenthal and Wiener[2] have just published diets for the ambulant treatment of the disease. These diets are based on the assumption, which has been so often emphasized, that successful therapy of the diabetic necessitates the most painstaking care in dietary regulations after the patient leaves the institution. By means of the diets published by Mosenthal and Wiener a patient with any degree of intelligence can work out for himself just what diets to follow at given stages of the disease. Lauritzen,[3] of Copenhagen, also treats of modern individualized treatment in diabetes. In this article all kinds of diabetic patients are discussed, diet is given in detail, and, although the article adds nothing particularly new, it is a very good régime, especially for teaching purposes. Strouse[4] in a recent article emphasizes the point of view that the diabetic patient is essentially no different from any other patient in internal medicine and that proper therapy depends on complete individualization of each patient. He emphasizes the need of paying more attention to the history and physical examination, and of placing proper relative values on all the data obtained, history, physical examination, food intake, and laboratory findings.

This inclination to emphasize the necessity of individual therapy is an excellent tendency. Investigation will be of little avail to the diabetic patient unless the physician treating this patient knows how to apply to his individual case the lessons learned from the more intensive study.

1. Allen, Frederick M.: Experimental Studies on Diabetes, Jour. Exper. Med., 1920, xxxi, Nos. 4 and 5.
2. Mosenthal, Herman O., M.D., and Wiener, Herbert J., M.D.: Diets for the Ambulent Treatment of Diabetes Mellitus, Am. Jour. Med. Sc., 1920, clx, 46.
3. Lauritzen, Marius, M.D.: Modern Individualized Dietary Treatment in Diabetes, Am Jour. Med. Sc., 1920, clx, 79.
4. Strouse, Solomon, M.D.: Control Methods in the Treatment of Diabetes Mellitus, Jour. Am. Med. Assn., 1920, lxxv, 97.

SPINAL ANESTHESIA

MANY American physicians who, during their service with the American Expeditionary Forces, had the opportunity to visit the larger French clinics were surprised to note the frequency with which spinal anesthesia was employed. Although first discovered by an American, the method is much more widely used in Europe than in America, and is especially popular in France, Roumania, Germany, and Austria.

J. L. Corning published the reports of his experiments in 1885 in the *New York Medical Journal*. Bier of Berlin and Tuffier of Paris, after the work of Quincke, rediscovered spinal anesthesia. These surgeons used cocain exclusively. Because of the great number of mortalities, the method soon fell into disrepute and it was not until after Fourneau's discovery of stovain, in 1904, that it was again adapted.

Wertheim and Shauta of Vienna have employed spinal anesthesia in nearly all cases in their gynecological clinics for years. In Marseilles Professor Imbert has been using syncain for practically all pelvic operations.[1,2]

Jonnesco, the Roumanian surgeon, however, made the widest use of spinal anesthesia, and to him belongs the honor of devising methods for its use in operations ranging from the scalp to the toes. He published in 1914 a report from his own clinic and that of other Roumanian surgeons of a series including 11,324 operations under spinal anesthesia, of which 10,289 were lumbar punctures, and 1,035 cervical or dorsal punctures, with only two deaths.

Various different anesthetics are employed—cocain, novocain, tropococain, stovain, apothesine, syncain, and procain. Cocain is generally conceded to be dangerous, although Wells[3] states that Paul Dalmar of Montpellier, France, has been using anhydrous cocain successfully for operations in practically any part of the body. Jonnesco uses stovain and strychnin, but claims that it is not the nature of the anesthetic drug but the method used which is the important factor. Any local anesthetic which is strong enough, but not toxic, will serve.

Various methods are employed to bring about anesthesia at a desired area. Some surgeons employ a mixture which has a higher specific gravity than the cerebrospinal fluid and, after the introduction of the fluid by lumbar puncture, they change the position of the patient. Others use a fluid of a lower specific gravity. Still others first aspirate a large quantity of spinal fluid, and reach the different levels by forcing the anesthesia in with a varying amount of pressure. Jonnesco anesthetises the desire segment of the body by injecting the anesthetic at different levels of the spinal cord.

It is our desire here to review briefly Jonnesco's method,[2] taking as a basis a recent article and his book "La Rachianesthésie Génerále."

Jonnesco claims that, with very few exceptions, practically every operation can be conducted successfully under spinal anesthesia. Inasmuch as the anesthetic acts especially upon the nerves near the site of its introduction, he changes the level of his punctures as the case may demand. Four sites for injections are used: (1) The "mid-cervical" site, for operations on the head, scalp, face, or pharynx, lies between the occipital protuberance and the *vertebra-prominens, i. e.*, between C 3 and C 4 or C 2 and C 3. (2) The "cervico-dorsal" or "superior-dorsal" point, for operations upon the upper part of the chest and upper extremities, is between the *vertebra-prominens* and the next lower vertebra, C 7 and T 1 or T 1 and T 2. (3) The third site is the "lower dorsal" or "dorsal lumbar," at the level of the lower border of the twelfth ribs, used for abdominal operations and for operations on the lower extremities. (4) The usual lumbar puncture site, namely, at the level of the iliac crests, is called the "lower lumbar" site, and is used for pelvic and perineal operations. Jonnesco has found it best at times to divide the dose between two sites—thus, for operation on the entire thorax or for long operations involving the abdomen and the pelvis—gynecological operations, for example—the dorsolumbar and lower lumbar sites are chosen. A shifting of position is also used, but to a slight extent, as he considers that the fluid diffuses better in the direction of gravity to only a very small degree.

Jonnesco uses a 1 cc. syringe in conjunction with a 6 cm. fine platinum needle, with a stub point.

The anesthetic is mixed just prior to injection, by dissolving the sterilized stovain in 1 cc. of a sterile aqueous solution of strychnin sulphate. The drugs are put up in separate ampules. The purified stovain is in crystalline form in ampules containing amounts increasing one-half centigram from one-half centigram to six centigrams. The strychnin sulphate, dissolved in 1 cc. of water, is put up in ampules containing one-half, one, and two milligrams of strychnin. After having decided upon the dosage to be employed, the strychnin solution is aspirated with a syringe and ejected into the ampule containing the desired amount of stovain. The solution of the stovain is aided by the heat of an alcohol flame. When thoroughly dissolved, the 1 cc. solution of strychnin and stovain is again aspirated into the syringe and is ready to be injected. Ten to fifteen minutes before the injection it is advisable to give 0.25 to 0.50 gms. of caffein hypodermatically.

The injection is preferably made with the patient sitting up and bending slightly forward. Only enough spinal fluid is allowed to flow to demonstrate that the needle has entered into the arachnoid space. When the fluid is bloody, it is best to let it flow until clear before injecting. At the end of the injection a few drops of fluid are aspirated into the syringe to make sure that during the maneuvers associated with the injection the needle has not been pulled or pushed out of place. The patient is immediately placed in the decubitus position.

The dosage varies with the length and severity of the operation to be performed, the general condition of the patient, and, especially, the site of injection. Larger doses can be given for the low injections. The dosage for the mid-cervical and upper dorsal injections varies between 0.005 and 0.02 gms. of stovain and 0.0005 to 0.001 gms. of strychnin sulphate. For the dorsolumbar and lumbar sites from 0.02 to 0.06 gms. of stovain and from 0.001 to 0.002 gms. of strychnin. When injections are made at two sites, the doses are divided one-third for the upper and two-thirds for the lower. For children under four years the maximum dosage is 0.005 to 0.01 gms. of stovain and 0.0005 to 0.001 gms. of strychnin. Over this age the stovain can be given in larger quantities, but never more than 0.001 gms. of strychnin should be given. The aged and the cachectic, likewise, receive smaller doses.

The position of the patient plays but a slight rôle in the effectiveness of the anesthetic; however, head cases are usually operated with the head slightly lowered, and pharangeal cases with the head over the edge of the table. For perineal work or operation on the lower extremities

1. Jonnesco, Thomas: La Rachianesthesie Générale, Masson et Cie, Paris, 1919.
2. Barbier, M.: La Rachianesthesie Générale de Jonnesco, Progr. Méd., Jg. 47, No. 9, 97, 1920.
3. Wells, J. R.: Anhydrous Cocain Spinal Anesth., Ann. Surg., April, 1920, p. 71.

a "semi-Fowler's" position is used. The Trendelenburg position is used whenever advantageous to the surgeon.

Certain symptoms are to be expected and looked for, irrespective of the site of injection; these are temporary pallor, sweats, a temporary drop in blood pressure, and an increase in pulse rate. Nausea occurs in from 5 to 8 per cent of the cases, but it is usually of short duration and is not followed by vomiting. Vomiting occurs in 2 to 3 per cent of the cases; it is usually but a single emesis, and is followed with cessation of other symptoms.

Interesting variations are found in the respiration, depending, first, upon whether the patient breathes with the abdominal or thoracic type and at what level the injection is made. Following a mid-cervical injection in a patient who presents the two types combined, the thoracic respiration will become exaggerated in rate and amplitude, while the abdominal respiration will diminish and finally stop altogether, gradually reappearing, when, about twenty minutes after the injection, it will resume normal. The thoracic motions gradually diminish to normal. In a case with only the abdominal type, the thoracic type will appear, strong to say, and the above mentioned changes will take place, the thoracic type disappearing again as soon as the effect of the anesthetic has terminated. In a superior-dorsal injection it is the diaphragmatic type which increases and the thoracic which stops.

Notwithstanding these respiratory changes, Jonnesco claims that only very rarely has he had to resort to artificial respiration. It is significant that in eleven years he has known of only three deaths from respiratory failure, and that in all these cases he claims more than the prescribed maximum dosage was given.

Among the after-effects, headaches were noted in 6 per cent, usually this symptom being easily controlled with pyramidon; backaches are rare; nausea and vomiting are not encountered; urinary incontinence or retention occur only after operations which might in themselves cause this condition. Irrespective of the anesthetic, paralysis seems to be restricted to the *N. oculomotoris*, and only five instances of this complication have been reported.

As far as contra-indications are concerned, Jonnesco confirms that spinal anesthesia virtually has none, inasmuch as neither age, general condition of the patient, changes in any one organ, speak against this form of anesthesia. R. B. B.

THE PRESENT SITUATION IN CANCER

THE rôle of chronic irritation as a factor in the causation of cancer is becoming more important and some of the evidence gradually being accumulated is interesting and curious.

The Kangri basket of the Kashmir natives is a rather famous chronic irritant. It is a basket of warm charcoals carried in front of the abdomen or placed between thighs and knees, and is responsible for a marked increase in carcinoma of the skin in these people. In China carcinoma of the esophagus and mouth is common among men who eat their rice quite hot; but among women, all of whom eat after the men folks, it is not so common.[1] W. J. Mayo has recently commented upon the heat of ingested foods as a possible cause of upper alimentary cancer in civilized communities, natives who do not cook their food having far less incidence of cancer of this region. Hot porridge is generally ingested at 163° F., rice at 168°, and hot liquids in general range from 120° to 170° F.

Bertillon[2] once divided France into two squares, one centering about Paris, the zone of greatest alcohol and meat consumption, and the other bordering on the Mediterranean, where these habits are much less in evidence. The upper square had two to four times the cancer incidence of the lower, and the increase was chiefly in cancer of the stomach and rectum.

Imperfect combustion of coal probably is a cancer irritant of some sort; for while coal miners have a low mortality, in workers about gas works and coal heavers about boilers and engines the death rate from cancer is relatively high and English chimney sweeps had a cancer mortality[3] five times that of normal, this last being due chiefly to cancer of the scrotum and being attributable to the direct irritant action of soot. On the continent, where precautions as to clothing were taken, there was no such inordinate increase. A Japanese pathologist[4] has developed cancer in the rabbit, an animal normally very resistant to cancer, by repeatedly painting its ear with coal tar.

Dermatologists[5] see cancer in such processes of long standing irritation, as lupus, psoriasis, and chiefly in persons whose skins have been exposed over long periods to light or heat.

In countries where the breasts are continually exposed and free there is much less carcinoma of the breast than in civilized communities.[6] Many other and even commoner instances could be cited in which cancer starts at the site of some long standing irritation.

Whether cancer is really on the increase, or whether the apparent increase everywhere reported is due to improved diagnosis, differences in longevity, and improved registration, is still an open question. Certain it is that every statistical survey reports an increased cancer mortality. From 63 deaths per 100,000 population in 1900, to 81.1 deaths in 1915, representing an increase of nearly 30 per cent, are the figures from the United States Registration Area. These statistics cover roughly 75 per cent of the population. During this same period the death rate from tuberculosis fell[7] from 202 to 145 per 100,000. In New York City[8] the general death rate for 1919 has fallen 23 per cent over 1918, but the recorded cancer deaths have increased 4.6 per cent. Throughout the world there are similar steady increases. Thus, from 1896 to 1910, while the United States increased 18 per 100,000 in population, Ireland increased 20 per 100,000, Denmark 18, Germany 13, and Austria 10.[9] Cancer will take one man in eleven, and one woman in seven.

To what extent can this apparent increase be explained by varying degrees of accuracy in diagnosis, and to the increased longevity of the present day? Since the civil war, fifteen years have been added to our normal expectation of life.[6] German vital statistics estimate a difference of twenty-five years in the length of life between the Prussian of 1860 and of today. Dogs and cats, the only animals who in nature are allowed to live out their normal life in any great numbers, have a high frequency of cancer.[4] Certainly all mortality statistics have to be corrected to ascertain the proportion of inhabitants reaching cancer age before inferences can be drawn. English statistics have long been so corrected; but since United States

1. Pennington, J. R.: The Causation of Cancer-Old and New Theories, Mod. Med., 1919, i, 358.

2. Bertilion, Jacques: Presse Medicale, 1911, May 13, (quoted by Pennington).
3. Bainbridge: The Cancer Problem, 1918.
4. Wells, H. G.: Carcinoma from Standpoint of Pathologist, Internat. Clin., 1918, iv, 289.
5. Pusey, W. A.: Carcinoma from Standpoint of Dermatologist and X-Ray Treatment, Internat. Clin., 1918, iv, 292.
6. Mayo, W. J.: Relation of Cancer to Prolongation of Human Life, Surg. Gynec. and Obst., 1920, xxx, 22.
7. Bulkley, L. D.: Carcinoma and Its Treatment, 1917, from United States Mortality Statistics, 1915.
8. Bulkley, L. D., and Cady, L. B.: Cancer Death Rate in New York City during 1919, Med. Rec. New York, 1920, xcvii, 486.
9. Hoffman: Mortality of Cancer Throughout the World 1915 (Quoted from Bainbridge).

statistics are still not corrected for this factor, and since the death registration area comprises only 75 per cent of the population, conclusions based on American sources must be accepted with considerable caution (Bainbridge[9]).

English statistics[10 11] have long been studied with reference to the question: Is the increase of cancer incidence apparent or is it real? Carcinoma in some regions of the body is much more accessible to physical diagnosis than in others and, if recognition being steadily increasing were responsible for the higher present day statistics, the curves of the accessible organs might remain flat, while the curves of the inaccessible organs would steadily mount. This supposition was substantiated by analyses over a period of two decades. While cancer of the skin and of the uterus, both easily accessible to physical examination, showed no increase, alimentary cancer everywhere showed a rising curve. The male has much more carcinoma of the alimentary tract than the female, and all statistics show that carcinoma is increasing much more rapidly in the male than in the female. Bashford thinks these differences are due to differences in accessibility to physical examination. From London Hospital statistics of 1904-1909, classifying growths as accessible or not accessible to physical examination, Bashford estimated that 91 per cent of the accessible growths were diagnosed, while only 62 per cent of the inaccessible ones were recognized. Another factor Bashford and Murray hold responsible for the increased recognition of today is a gradually decreasing tendency to ascribe "failing vital functions in the aged as a cause of an obscure illness," *i.e.*, fewer deaths are reported as due primarily to "old age." While the curve of cancer mortality from forty to fifty years of age has been relatively stationary for some years, the reported mortality in the aged has been relatively increasing. Summing up, they state that as regards cancer mortality, "England of today compares with England of several years ago, as London of today compares with rural England of today."

However, these analyses are not everywhere accepted as fully explanatory. Ewing[12] says they probably account for a large proportion of the increase, but there still is a certain amount of the increase unaccounted for. Bulkley,[7] who believes that cancer is a systemic disease, and that local excision of the tumor does not cure it any more than cutting off a gouty toe cures gout, has no patience with arguments such as these.

What has surgery done for cancer, and what hope of cure does it offer? Some writers are not optimistic. Whether or not surgery obtains a cure depends on two factors: (1) The presence of distant metastases, often unrecognized at the time of operation; and (2) the completeness of the surgical removal and the possibility of grafting or dissemination of carcinoma cells at the time of operation.

Levin[13] describes the body defense against carcinoma metastases as the formation of a connective tissue capsule. Carcinomatous emboli occur with great frequency, and are transported everywhere. The reason they do not form metastases oftener is because the connective tissue encapsulation is an immediate protection. In carcinoma of the abdominal viscera emboli are encapsulated with great frequency about the small arteries of the lungs. In bone carcinomatous emboli lodge in the lacunae, act as osteoclasts, break down some of the bone, then this space fills up with carcinoma. This mass is surrounded by connective tissue fibrils and, later, a bony capsule is deposited about the irritating focus. Whether or not the body or the carcinoma triumphs depends largely upon the local immunity of the organ, "the metabolic affinity between the carcinoma cells, and the cells of the particular organ." A carcinoma embolus may remain encapsulated for years and then suddenly, presumably because of some lowered resistance, it will burst forth into a metastasis. Here is an explanation of metastases occurring years after operation. The varying degree of immunity possessed by different people has often been commented on clinically. The late J. B. Murphy[14] often spoke of the "rebelliousness of cancer when it occurs with obesity," and remarked that "the thin spare type has a tendency to the production of connective tissue preventing the spread of malignant cells." W. J. Mayo[6] says that, whereas all persons have a certain measure of immunity, some having sufficient to prevent their ever having cancer, in others, it may exist to such a degree that an incomplete operation will not be followed by recurrence.

Grafting, dissemination of carcinoma cells, or incomplete removal at the time of operation are commonly known sources of recurrences. W. J. Mayo states that he has often been impressed by local grafting of carcinoma cells, such as recurrences at the site of skin suture holes only, or recurrence about a colostomy wound from a low sigmoid growth. Once the regional lymph glands are involved the outlook is altogether different, and incomplete removal, no matter how careful and skillful the dissection, is the rule.

Carcinoma of the lip is one of the most favorable malignant tumors operated upon as regards ultimate cure. When no glands are involved, various statistics show 70 to 80 per cent of cures. In a recent study of the material at the Mayo Clinic, Broders[15] shows that 76 per cent of cancer of the lip without glandular involvement are still living; of those having glandular metastases, only 17 per cent are alive, and all of these had involvement of only one submaxillary lymph group. No case with two groups of glands involved, or with cervical glands affected has been reported living. Bevan[16] says that from his personal experience, he does not think he has ever cured a carcinoma of the breast with axillary involvement.

To arrive at an estimate of just what surgery has done for cancer Levin[13] compiled a table of the reported results from various surgeons and clinics. In one column are placed the figures of cures reported from the best operators and clinics (Halsted of Johns Hopkins; Willy Meyer of New York; The Mayo Clinic, Rochester, Minn.) and in the second column, called a low estimate, the reported results are given from other operators, presumably not so skilled.

REPORTED CURES OF CANCER

PERCENTAGE OF FIVE YEAR CURES OF OPERATED CASES

Chiefly Metastatic Cancer	*High Estimate*	*Low Estimate*
Bladder	30	6.8
Breast	38	16
Head, face and neck	83	30
Liver	None	None
Mouth and tongue	20	13
Rectum	50	9
Stomach	25	3
Abdomen	12	4

If the average operability be taken as 50 per cent, the surgeon refuses to operate upon about 50 per cent of the

10. From Bashford and Murray second Scientific Report of Imperial Cancer Research Fund (Quoted from Bainbridge).
11. From Registrar General's Report England and Wales for 1911, Pub. 1913. (Quoted from Bainbridge).
12. Ewing, James: Neoplastic Diseases, W. B. Saunders Co., 1919.
13. Levin, I.: Cancer Problem, Med. Rec., New York, 1919, xcv, 551.
14. Clinics of J. B. Murphy, iii, 1, 88.
15. Broders, A. C.: Squamous-Cell Epithelioma of Lip, Jour. Am. Med. Assn., 1920, lxxiv, 656.
16. Bevan, A. D.: Carcinoma from Standpoint of Surgeon, Internat. Clin., 1918, iv, 286.

patients presenting themselves to him because of this advanced stage, and a comparison of the average of these cures with the cancer incidence taken from Mortality Statistics, there is obtained an estimate of just how much cancer is cured surgically. Doing so, Levin says that the best surgeons cure 15 per cent of cases. If all patients came to the surgeon in time, that is, if the operability were 100 per cent, and if all surgeons were as successful as the best surgeons, there would only be 30 per cent cures. At present 10 per cent are cured.

But statistics like these are changing. The limits of operability are widening. At the Mayo clinic[6] when 25 per cent of carcinomas of the intestine and rectum were deemed operable, the operative mortality and the percentage of five year cures were greater than now. As an increasing proportion of the further advanced cases were operated upon, the operative mortality and the precentage of five year cures diminished; but, instead of curing 13 in each 100 patients presenting themselves, 27 are now cured.

People are gradually learning to seek advice earlier, and more often than formerly present themselves before a precancerous condition has become malignant. Bloodgood[17] says that the incidence of benign tumors of the breast has risen at Hopkins from 32 per cent to 59 per cent of the total breast tumors, and the surgeon is nowadays called upon much more frequently than formerly to decide upon the nature of a borderline tumor.

HARRY G. SALZSTEIN.

BRITISH MEDICAL ASSOCIATION MEETS AT CAMBRIDGE

BY OUR LONDON CORRESPONDENT

THE eighty-eighth annual meeting of the British Medical Association was held at the university town of Cambridge from June 24 to July 3, last. This was the first full meeting since 1914 and everything conspired to make of it a success. The place of meeting was almost ideal. Cambridge is situated on a main line about fifty miles from London and, being a large railway center, is easily accessible from all parts of Great Britain. In addition it is peculiarly well adapted for a meeting of this character, both from the scientific and social aspects. The meeting was well attended—there were several well known American surgeons and medical scientists among those present—and the papers read and the discussions thereon were, generally speaking, of a high standard. It may be said that the meeting was especially interesting as it marked a new phase of medical practice. The trend of the chief addresses and of the papers read at the most important sections was in the direction of preventive medicine. The policies of the Ministry of Health as exemplified in the interim report of its Consultative Council were freely discussed and subjected to a good deal of destructive criticism.

A Question of Ethics

The first three days of the meeting were given over to the deliberations of the delegates to the British Medical Association and were productive of valuable results. That is to say, many matters of great moment to the medical profession were more or less threshed out and, if not settled, were considerably elucidated. For example, the question of professional secrecy was dealt with and the following motion was adopted after protracted discussion: that, having further considered the question of professional secrecy, veiwed from the standpoint of the medical profession and with especial regard to venereal diseases, the Representative Body reiterates the opinion that a medical practitioner should not without his patient's consent voluntarily disclose information which he has obtained from such patient in the exercise of his professional duties.

A recommendation of the Central Ethical Committee was also adopted to the effect that a registered medical practitioner should not make use of nor recommend any remedy of which the principal ingredients are not disclosed. In the discussion on this subject it was shown that there was much difference of opinion, it being held by some of the speakers that there were remedies the composition of which was not known but which had proved of value in sickness.

Whole Time State Service Opposed

The most important part of the deliberation of the delegates was that which concerned the report of the Ministry of Health Committee dealing with the Interim Reports of the Consultative Councils on Medical and Allied Services. This report was in favor of the scheme or schemes proposed in the Interim Report, promising, of course, that the said Reports were interim and not final. An amendment to the adoption of the Committee's report was put forward and Sir James Barr characterized the reports as idealistic and not practical. He declared that if the plans suggested in the Reports were carried out as they should be it would take £100,000,000 ($500,000,000) a year for the first five years and £150,000,000 ($750,000,000) a year for the next ten years. The Representative Body was asked to see that the general principles of the reports were more clearly defined, the representativs had not had time to digest the arguments. A unanimous resolution was passed against the principle of a whole-time state service.

The meeting proper of the Association opened in the University Senate House on the evening of June 29, when Sir Thomas Clifford Allbutt delivered his address as president of the British Medical Association. The address was a particularly brilliant review of the work done by the universities in medical research and practice. The speaker inveighed in strong terms against the modern system of cramming for examinations. Referring to the position of the family practitioner and the manner in which state or official control is coming into vogue, Sir Clifford said that for some years past a few of them had been protesting against the clipping of family practice by official shears. They saw the subjects of infectious fevers carried into isolation, and the tuberculous and syphilitic disappearing with them. The children were turned over to the school doctor, the parturient woman to the new midwife, and so forth. What was to be the end of this pollarding of family practice? Were its branches to be scattered about in a wilderness of "specialists," and the family physician a mere sweeper up of inconsidered trifles? But how, the speaker asked, was the practitioner to rise to higher standards of modern science and skill when no means for investigating disease, or of making an intimate diagnosis were provided for him? It was pointed out that the opportunities for tests, analyses, and the necessary examinations which were open to a doctor near a university center should be universal. Moreover, if they were to be fruitful, the practitioner must consult with the scientist. The plants with their staffs should be established in all districts, together with a much larger proportion of cottage hospitals. Cambridge University and its sisters were sending out every year bands of young graduates quite competent to deal with

17. Bloodgood: Article on Binnis Treatise on Regional Surgery, 1917, i, 557.

disease in all its forms, and to use refined means of diagnosis, if these means were supplied. If not supplied, how could they be blamed if they fell into some stagnant routine?

Essentials and Electives in Medicine

There were two most important sectional meetings, one on medical education and the other on medical sociology. The section on medical education was deeply interesting and highly instructive but, as space is limited, the pith of the subjects discussed, as embodied in the following three resolutions handed in at the close of the meeting, will only be given: (1) That the lowest age of registration for the medical student should be seventeen years. (2) That in the forthcoming revision of curriculum promised by the General Medical Council the lightening of professional studies would be facilitated if chemistry and physics were made school subjects, biology remaining a professional subject. (3) That with a view to securing adequate training in physics, chemistry, and biology as applied to medicine, by courses of these subjects within the professional curriculum, it is desirable to exact a knowledge of physics and chemistry of matriculation standard of all medical students before they are registered.

A most illuminating discussion on the future of medical practice took place on July 1, in the Section of Medical Sociology, under the presidency of Sir George Newman, chief medical adviser to the Ministry of Health.

Organize for Community Effort

Sir George Newman[1] opened the discussion by stating that his task was to organize on behalf of the community a profession whose whole tendency is towards individualism; but, as that precious quality—individualism—must not be lost, the "nationalization" of the medical profession was impossible. However, five outstanding problems faced the medical profession in its relation to the state: (1) A new unit of health government must be found. In defining the areas of the Poor Law unions the local sanitary authorities, the insurance committees, and the local war pensions committees the country had been mapped out five times over, but the charting had been done by different hands at different times and for different purposes, causing duplication, overlapping, and confusion. Clearly, there would be advantage in having one authority for all health purposes.

Another common-sense requirement as uniformity of administration in all comparable areas; all through the country there was need for the adoption of accepted standards and a larger measure of equalization and uniformity of central and local action. The plan evolved must represent not what the state alone or medicine alone would prefer, but the will of the people at present—an extension and coordination of medical provision was required. At present there was inadequacy, unequal provision, and piecemeal effort. The provision of medical treatment in the home, at the clinic, in the hospital, and in the convalescent home, not only for the pauper class but for the whole of society, must be brought together in proper relation. A properly connected medical policy would not arrive in their lifetime; all that could be hoped for was to lay some of the foundation stones.

The future of the hospital system constituted another problem with many issues. At present there was no connected hospital system: the relation of hospitals to each other, and to the contributory clinics and the insurance systems, was a typical issue which called for settlement. A fourth subject, and perhaps the most important of all, was an adequate method of education of the undergraduate and the practitioner. A different kind of doctor was needed in these new times: he required in addition to the learning and skill of former days, an improved training in new subjects—in preventive medicine and in the political science of communal responsibility. Some specialization of practice there must be, but it must be recognized that such diseases as tuberculosis, venereal and heart disease would never come under control until and unless the general practitioner was in a position to deal with them. Lastly, the medical man of this new age was concerned with the advancement of humanism. The doctor must be the chief educator of the people in the way of health: in so far that he could not escape his share of responsibility in the study and handling of many of the medicosociological problems, education, recreation, housing, the conditions of industry, sobriety, cleanness of living, the prevalence of venereal disease, prostitution, the penal laws, the causes of certain crimes, the integrity of family life—all such matters concerned all physicians, and to fulfill their vows they must be concerned with them. They could not be wise healers of the patient or of the community without a large sympathy and a liberal humanism. But they must not think that the medical factor was the only or decisive factor; they must interrelate medicine with the social, moral, and ethical movements and aspects of man's mind.

Adequate Attendance for Workmen

Mr. C S. Jenkins expressed the views of the Labor Party and declared that before the adoption of the Insurance Act it was difficult for a workman to get adequate medical attendance: nowadays when the average wage on which he had to support a family was less than £4 ($20) a week, he had very little to spend on the doctor. The Insurance Act did nothing for women and children. The facts as regards industrial hygiene were appalling: in the boot and shoe industry the average age at death was under forty: 90 per cent of the deaths were due to respiratory diseases. In the iron and steel trades the average age at death used to be thirty-nine, but just before the war the figure had improved to forty-nine. Why should man die at this age? The reason was that flesh and blood were cheap. The Labor Party wanted the profession to educate workers in the preservation of their health and to study the conditions under which the workers lived and worked. During the war, when the value of labor was recognized for the first time, the Government set to work to prevent disease and did good work. Why could not this work continue? The Party were not asking for a whole time medical service without a *quid pro quo*: they were willing to give the profession the control asked for and an adequate wage.

The views of all sections of medical practitioners were represented, and also Dr. I. R. Brown, Johns Hopkins Medical School and Hospital, Baltimore, gave the meeting information as to hospital arrangements in the United States.

WESTERN ASSOCIATION OF HOSPITALS

There has been formed in Saskatchewan the Western Canadian Association of Hospitals, with M. M. Seymour, M.B., as president, and Dr. Warren of Calgary as secretary. There will be four vice-presidents for each of the four western provinces.

1. The paper of Sir George Newman will appear in the November issue of MODERN MEDICINE.

ANIMALS SERVE THE PUBLIC HEALTH

The usefulness of animals to man extends far beyond the food, clothing, and other materials which they supply, according to a recent report of studies made by the Bureau of Animal Industry, Department of Agriculture. The following instances in which animal experiments contribute to human health were given in a recent address by E. C. Schroeder, M.D., superintendent of the Experiment Station of that Bureau:

The French abandoned the project of the Panama Canal after a loss of 20,000 lives, but it became possible when animal experimentation revealed the specific nature of yellow fever.

In the development of vaccines, bacterins, and antitoxic serums it has developed safer surgery and surer diagnosis and in this way saved thousands of lives and prevented many more cripples as a result of the recent war. Such diseases as smallpox, Asiatic cholera, bubonic plague, malaria, typhus fever, as well as yellow fever, have been controlled.

In a like manner the Department has been enabled to exclude from this country or to control many food-destroying diseases. Many discoveries useful to stockmen are of service also to hygienists and physicians, and to this source may be attributed the following basic knowledge:

Circulation of the blood; capillary circulation; the vasomotor mechanism; functions of the nervous system; the flow of chyle in the lacteals; the passage of chyle through the lymph ducts into the venous circulation; the nature of the digestive fluids and chemical transformation of food through their action; functions of the liver, lungs, kidneys, and other organs; the reaction of the cells to various kinds of stimuli; significance of the endocrine glands; nature of inflammation and other pathological processes; and numerous other discoveries in physiology, pathology, and biochemistry.

Animal experimentation has also yielded largely to our knowledge of the specific action of drugs. It proved that the manifestations of tuberculosis in different portions of the body all have one essential cause. It proved that tuberculosis is contagious; that the disease is caused by the tubercle bacillus; that the bacillus is quickly destroyed by light but remains alive and virulent a long time in dark places; that there are three types of tubercle bacillus. It led to the discovery of tuberculin, without which, used as a diagnostic agent, the control and eradication of tuberculosis among food producing animals would be impossible.

Experiments with animals have given information that prevents untold suffering of both persons and animals by aiding in the preservation of health and hastening recovery from sickness. Persons who treat diseases among animals probably relieve more pain every day than animal experimentation causes in a score of years.

The foregoing summary of results is believed to be of general interest especially as it relates to the frequent assertion that live stock receives more scientific study than human beings. The fact remains, however, that greater knowledge and skill applied to live stock raising is a definite means of benefiting mankind. For instance, the development of an ample and safe milk supply is obviously a practical way to reduce mortality among and to correct undernourishment of babies. Similarly, the eradication of parasites in sheep is an essential step toward an adequate supply of wool clothing.

In view of the manifold advantages of modern scientific methods for the study of disease, it seems incredible that there should be questioned in any state the right to continue such effective bacteriological, pathological, and physiological experimental work in solving the problems for the welfare of mankind and for their commercial progress.

HEART DISEASE AS A PUBLIC HEALTH PROBLEM

The fact that in patients suffering from heart disease a certain degree of disability often exists for years, and that before death finally occurs there is usually a period of complete disability and dependence which may extend over months or years makes this disease a public health problem of great importance. An accurate judgment of its magnitude is brought out by the figures summarized by Dr. Lewis A. Conner in the *Journal of the American Medical Association* of June 5, who states that among men of military age of the country rejections for organic disease of the heart amounted to 30.74 per thousand. Of those accepted and subsequently rejected at the camps because of heart disease the average was 11.56 per thousand, that is, among 5,000,000 men of military age, more than 200,000 were disqualified because of heart defects.

For civic life figures are not so easy to obtain. During the period of 1915-1918 one of the larger and more carefully managed life insurance companies reported the rate of rejection for heart defects as 24.4 per thousand; this in view of the fact that persons with the more obvious forms of heart disease are not likely to apply for insurance. The Department of Health of the City of New York reports an incidence of heart defects among 250,000 school children of 1.6 per cent, or approximately 20,000 school children with some evidence of such disorder.

The tables of the Prudential Life Insurance Company indicate that diseases of the heart were responsible for almost one-eighth of the deaths of all ages and for almost one-fifth of the death in persons over forty years of age as reported in the United States Registration Area in 1917.

These figures show the affection to be one of the more common chronic diseases, but are not so significant as to single it out for special attention from the standpoint of public health. The present movement for the improvement and coordination of existing agencies for the relief of sufferers from heart disease and for devising measures of prevention has arisen because of the conviction that our present methods of dealing with the problem involve enormous economic waste and immeasurable suffering which is unnecessary and preventable. Dr. Conner summarizes his study with recommendations (1) for the formation of special cardiac dispensary classes; (2) for increased facilities in caring for suitable heart cases in convalescent homes; (3) for greater interest in the welfare of school children with heart defects; (4) for the provision of suitable occupation for those suffering with this handicap.

Efforts for prevention are complex, but must be along three lines which correspond to the three great causes of heart disease: the prevention of rheumatic infection and its complications, the prevention of syphilis and its late effects, and the postponement of the degenerative diseases incident to the later years of life.

Recognition of the importance of the play instinct and of the possibility of using it constructively to make amends for the inroads that industry makes upon personality is destined to lead to a new and more wisely conceived program both in factory and community.—*Ordway Tead.*

HEALTH IN INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

Otto P. Geier, M. D., *Editor*

INDUSTRIAL REHABILITATION ACT

THE enactment of the law at the close of the last session of Congress which provides "for the promotion of vocational rehabilitation of persons disabled in industry or otherwise, and their return to civil employment," makes possible the repair of injury and the reclamation of the injured on a scale not hitherto attempted and promises a program of conservation limited only by the degree in which it is accepted and the intelligence with which it is administered by the several states. Although the Act has been in effect only since June 2, its provisions have already been accepted in nine states as follows: By previous acts of the legislature in New York, Nevada, Minnesota and West Virginia; by action of the governor, in Tennessee, Arizona, Indiana, North Dakota, and Ohio. It is certain that several other states will soon be added to this list.

The importance of this Act is limited only by the principles and policies carried out in its administration. At best only an estimate can be made of the number of persons disabled each year "in industry and otherwise." The figures on industrial accidents alone indicate that of the 40,000,000 or so people engaged in industry there are about 750,000 who sustain accidents which disable them for a period of more than four weeks' duration and between 15,000 and 18,000 who suffer a permanent disability. Any estimate of the percentage of this number so disabled as to require retraining to overcome the resulting vocational handicap would be only an approximation. Nor are there data from which to ascertain how many of the permanently disabled are unable to return to their former lines of work, as by far the greater number recover entirely from the disabling effects. Not all the changes in lines of work can be charged to the resulting disability and many of the permanently disabled are only slightly handicapped.

In an attempt to arrive at a ratio of industrial fatalities and disabilities in the United States, Charles H. Verrill, of the United States Employees Compensation Commission, found that on the average there are 14,000 persons impaired every year in American industries, to the extent of amputations, the loss of sight of one or both eyes, or 50 per cent or more loss of function of members. If to the "disabled in industry" there are added those requiring rehabilitation because of sickness 200,000 would be a conservative estimate of the number who would come under the provisions of the Act.

The most reliable figures as to the annual yield of disabilities are to be obtained through the industrial boards of the several states; for the statistical year of July 1, 1917 to June 13, 1918, these range from 109 in Utah to 3,000 in New York, the completeness of the record in each case being largely determined by the specifications and requirements of the state labor legislation. The Cleveland survey of cripples in 1915-1916, covering all ages, found the ratio of cripples to be 6 to 1,000 of population, which would yield a figure of 600,000 for the country at large; but this would include some classes not covered by the Rehabilitation Act.

While in the aggregate these totals are appalling and present a reclamation problem of a magnitude not hitherto undertaken, there is to be reckoned to offset the cost of the project the cost to the various communities of the unorganized makeshifts resorted to in the maintenance of their cripples and the economic gain by reclaiming the vast army of those now classified among the "occupationally useless" who require only retraining to endow them with hope and a new earning capacity. The measure is entirely constructive, being directed only toward those capable of retraining. Specific provisions are contained in the law for the formulation of coordinating relationships between state boards of vocational education and the compensation commissions. The first step necessary has been taken. It remains to bring about effective cooperation between state public health agencies, public and private hospitals, the Red Cross, and all social service agencies. Not the least important part of the immediate activity called for is to present the matter to every disabled person whom it is proposed to restore to earning power.

S. P. M.

INDUSTRIAL TOXICOLOGY

THE pioneer stage of industrial medicine is fraught with many a task, according to Dr. William S. Wadsworth in the *New York Medical Journal*, and the most urgent, perhaps the most important problems lie in the field of industrial toxicology. Little help is to be found in the literature, the medicolegal literature lacking the necessary physiological conceptions; the chemical writers spending years in imitating some form of organic substance; and therapeutic writers being too largely concerned with some phase of the subject as developed in a laboratory.

A general toxicological consciousness then is essential on the part of the industrial physician. The lists of poisons given in the textbooks show how completely we have failed to grasp the fundamental nature of poisoning. The poisonous nature of many substances has been strangely overlooked by all writers and many more substances are ignored by most writers. Today almost no one recognizes carbon as the most common and probably the most powerful of all poisons and few consider tin as a practical poison. Our states regulate by law the rela-

tively harmless sewer gas, while little or nothing is done to check the wholesale poisoning by carbon monoxid gas.

Textbooks are full of references to sulphuric acid—and one often hears that the amount of that substance used is a measure of the civilization of a country, but how many point out the fact that most commercial sulphuric acid contains arsenic and that plants and workshops may have a liberal supply of arsenuretted hydrogen to cause a particularly serious type of chronic poisoning that will readily escape the unthinking, unobservant routine follower of the books? One cannot read the literature without being impressed by the frequency of the remark that certain substances are insoluble and therefore are not to be regarded as poisons. This is one of the statements made regarding tin salts, in spite of the fact that dozens of organic salts of tin are quite soluble and do actually cause frightful symptoms and death.

There is no need to worry about how much of a given poison is required to kill or whether it perturbs the heart of the noble frog, but it is essential to get a clear concept of the action of poisons, says Wadsworth. Given a man exposed to and poisoned by a substance the problems of the physician are chiefly along other lines, but all that is possible must be done incidently to master absorption. Above all it is to be remembered that not a few insoluble substances are absorbed. Pretense is to be avoided as to knowledge of what poisons really do in the body except in so far as they show gross results and effects.

An industrial toxicological literature is to be built up on knowledge of conditions, accuracy of observation, alertness to possible explanation, and common sense judgment of values. The physician himself must make a practical study of the problems of the plant, he must learn all substances that enter the factory, follow each substance from its entry to its exit, and must consider well the impurities that may be found in each. Then he must watch the workers along the paths of these chemicals, and especially the new men on the job who have not acquired that tolerance that makes serious chronic poisoning possible.

Difficulties of obstruction in management and inertia or ignorance of the men impede preventive work along these lines. Worst of all, the amelioration of remediable evils often is delayed or made impossible by organized obstruction from vendors of poisons who foist upon the public their deadly stuffs.

A NUTRITION CLASS FOR WORKING CHILDREN IN CHICAGO

By M. J. ROBERTS, M.D., and ANNA BOLLER, Ph.B., Chicago, Ill.

FOR many years we, as a nation, have been combating infant mortality. Instead of permitting nature to make its unerring selection of those most fit to survive, there has been a constant struggle to save the individuals who failed to meet the demands of a harsh environment A generation ago, the high death rate of infants was looked upon as a special dispensation of Providence. Eventually, however, infant mortality statistics produced sufficient alarm to stimulate the adoption of curative measures.

Having accomplished a remarkable reduction in infant death rates, it now becomes necessary to "carry on." The child must not be abandoned to join the vast army of the physically and mentally unfit, and become a burden to society. We need take no pride in a low infant death rate if more persons die from tuberculosis annually than are saved by child hygiene propaganda. The Government has a far greater problem to deal with in furthering the physical welfare of the half grown child than it ever had in dealing with infants. The general tendency in these days of hard work and high pay, is to make the children wage earners at the earliest possible moment.

Problem Is Many Sided

During the spring of 1919 the conference organized by the Children's Bureau at Washington discussed the problem in all its phases—work and play, the family budget, vocational guidance, and labor legislation. The returns from weighing and measuring contests all over the country indicated that malnutrition exists in every age group and in every class of society. The situation is now being met in many ways. Classes and clinics have organized in most of the large cities, and in many states departments of child hygiene are now as active as other departments of state legislatures.

In dealing with working children in Chicago, we consider the Vocational Guidance Bureau of the Board of Education our most valuable agency. It serves as a clearing house for all working children who are below a certain standard of physical fitness. Our beneficent laws permit children, when they have become men and women of fourteen, to earn their own living. They further provide, however, for the inspection and certification of such children until the mature age of sixteen. Physical examination is required in connection with some boards of education, and this is most carefully carried out in the city of Chicago. Those who are applicants for working certificates are not only examined, but their economic status is investigated. Individuals found to have physical defects are aided in every possible way in securing their correction. Free dental and optical work is arranged for in clinics, and all children conspicuously underweight are sent to nutrition classes. The work of the nutrition class is to deal with them in such a way as to make the physical examination prove of actual benefit to the child rather than a benefit to industry by the elimination of the undesirables.

It has never been the special business of any agency to fit children for the wage earning battle in the shop and factory. There are trade schools to prepare their minds and hands for their tasks, but neither the means nor the knowledge has been provided to equip their bodies to combat ill health. Hygiene taught in the average public school is ineffective, the physical training inadequate, and the medical inspection limited to the prevention of epidemics, with the minimum amount of correction of gross physical defects.

In dealing with groups of malnourished or undernourished children the first step is to make each individual aware of his impediments to health, and the next is to help him to help himself. It is a simple matter to tell a child that he has four decayed teeth and to go to the

nearest dentist and have them cared for. It is another matter to tell him that he is twelve pounds underweight and to build up. With many the problem is not what to eat, but where to find the means to be able to eat at all. Nourishing food for a boy of fourteen is a luxury at the present time. If a boy can not work to help out on the family budget there is proportionately less for the family

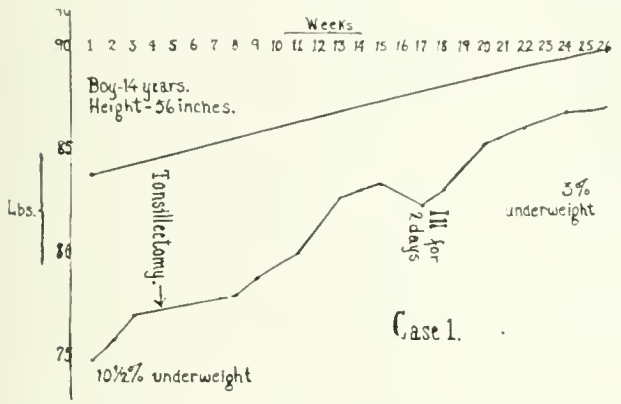

Weeks
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26
Boy-14 years.
Height-56 inches.
Lbs.
Tonsillectomy.
Ill for 2 days
3% underweight
Case 1.
10½% underweight

CHART I.—The graph of Case 1, 10 per cent under weight, who progressed with slight interruptions with the correction of a deficient diet.

as a whole to live on and less to eat. The less the child eats, the less fit he is to work.

With such a group, working though undernourished, because of the necessity of adding their bit to the family income, an evening class was organized as a part of the regular industrial clinic at Rush Medical School. The class had the support of the Vocational Guidance Bureau of the Board of Education, from which source all of the children were sent with the understanding that they should follow instructions in order to retain their certificate to work.

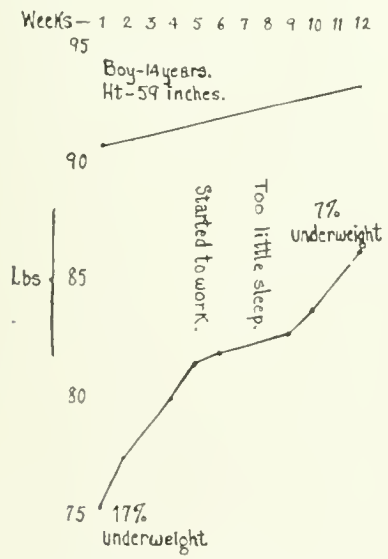


CHART II.—The course of Case 2, 17 per cent under weight, in whom care as to diet and as to the adjustment of rest to his working conditions brought him to normal conditions.

One hundred and thirty-three children made 951 visits during the first eight months of the clinic, which met only once a week; 90 were boys, 43 were girls.

After the first few meetings of the class it was discovered that many of the children came from the office or shop without first going home for their dinner. So it became necessary to furnish something to eat in order that they might be in a proper state of mind to appreciate our talks about three square meals a day. Our only funds consisted of fifteen dollars donated each month by a friend of the clinic. In addition to that the children paid for a very modest supper. The menu always contained some hot dish, bread and butter, jam, jelly, or peanut butter, fresh fruit, and plenty of milk.

We soon found that our suppers were the chief attraction, and the children who could eat at home preferred to join the others at the class. The weekly gain or loss was the main topic of conversation and was the best means we had of stimulating competition. None of the children ever refused milk in any quantity, or to eat potatoes, but their tastes in other respects were decidedly whimsical. After many trials with dishes of all sorts, prepared to demonstrate the foods which we thought the children should eat, we gave up in despair before their refusal to indulge in the experiment. We came to depend upon potatoes as the foundation of the meal. The home diets were so poor that it was not to be wondered at that the very plainest of food was preferred to the

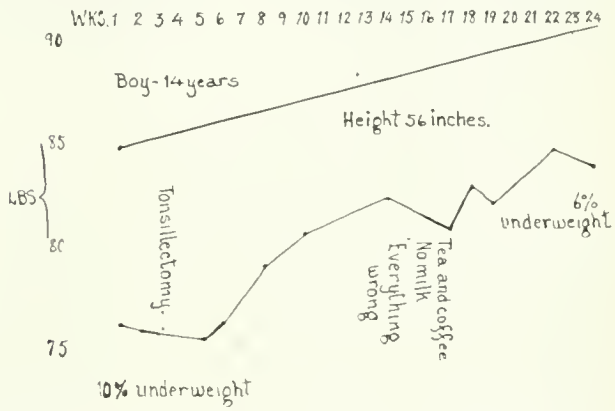

WKS. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
Boy-14 years
Height 56 inches.
LBS
Tonsillectomy.
Everything wrong
No milk
Tea and coffee
6% underweight
10% underweight

CHART III.—The fluctuations in Case 3 are due to some experiments of his own. When satisfied as to what was needed, he progressed until he reached the normal weight.

more varied diets to which they had never been accustomed.

On entering the class, each child furnished us with an outline of his regular diet, and these were classified as good, fair, and poor. Of the entire 133, only twelve diets were classed as good; fifty-ninth fair; and the rest poor. Personal hygiene and general physical condition, aside from undernourishment, were investigated on the same basis. In forty-six the general hygiene was good; that is, the teeth were brushed, baths taken at fairly frequent intervals, and the child was sleeping alone in a moderately well ventilated room. In a number of instances the whole family of five or six slept in the same room, and three or four in a bed. In Polish families it was madness to suggest open windows in winter time.

All physical defects were taken into account in the grading of the general condition, the most usual ones, however—such as teeth, tonsils, glandular enlargements, cardiac conditions and posture—forming the basis of comparison. The standardizing of a group, all of whose members were below par, was really a problem. No simple classification, such as good, fair or poor, seemed adequate. The corrective work however, may be given in figures. Fourteen children had their tonsils removed. Every child with bad teeth was instructed to have them taken care of, and practically all of the class have completed their dental repair work, or are still receiving attention. The fact that the children work eight hours

a day makes it exceedingly difficult to secure as creditable records as are secured in class work which permits of unlimited control of corrective work, diet, rest periods, and physical training.

We established a system of rewards which we found to be most efficacious. The children were all conscientious in their desire to gain, but, after a hard day's work in a shop or factory, we felt that the class must offer some special attraction in order to maintain a good attendance record. Each gain in weight was rewarded by a gold star in an individual booklet, and a book full of stars or the final attainment of normal weight for height secured a prize, a fountain pen, book, or knife.

Conquer Crushing Environment

The case reports which follow indicate the results, which, though by no means brilliant, are illustrative of good progress in the face of serious difficulties. The class was specially selected from among the poorest foreign element. Every child was a wage-earner, without a single advantage offered in the way of rest periods or diet, and

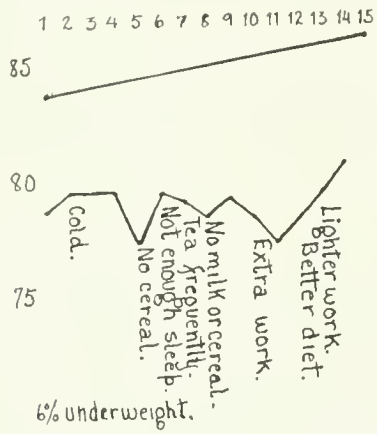


CHART IV.—There is in Case 4 an incipient tuberculosis in connection with a poor diet and other untoward conditions. He is progressively overcoming his handicap.

all the handicaps that it is possible for the stress and strain of modern life to place upon a child. Every gain was entirely due to the individual effort to conquer a crushing environment.

Case 1 is that of a boy of fourteen who was 10 per cent underweight. Physically he was in fairly good condition, except for large, cryptic tonsils. He worked as a type sorter. His diet was fair, but entirely lacking in milk or cereals. This he promptly corrected and gained well for the first two weeks. He then entered the hospital for a tonsillectomy, and remained away from class for a few weeks. On his return he progressed steadily until an illness of a few days duration kept him in bed and caused a temporary loss in weight. His final weight was within two and one-half pounds of his normal weight. He has reached the normal line since the records were reviewed for this paper (Chart I).

Case 2 is that of a boy of fourteen, 17 per cent underweight, who gained rapidly until he began to work, which was about a month after he entered the class. His physical condition was fair, except for a moderately hypertrophied thyroid and a soft systolic heart murmur. His diet lacked milk and cereal, and he drank coffee three times a day. He worked as an errand boy. He promptly corrected his diet and gained rapidly until he started to work, about a month from the time he joined the class. His gain was more gradual for a while and he told us it was because he was too tired to eat when he got home at night. He gradually became adjusted to his working conditions, and made a special effort to get as much rest as possible. He was soon gaining again at the old rate (Chart II).

Case 3 is that of a boy in good condition except for

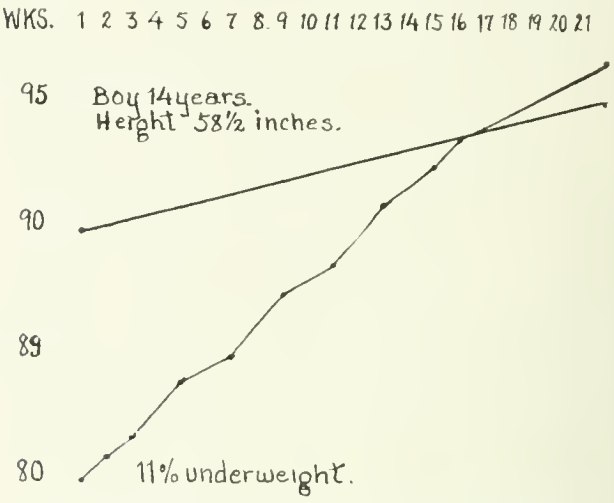


CHART V.—Improved diet and hygiene, together with excellent cooperation, produced the excellent gain shown by the graph of Case 5.

cryptic tonsils. After their removal he gained steadily until there was a sudden loss of a pound and a half during an absence of three weeks from the class. When asked to account for it, he stated that he had done everything wrong, apparently from an experimental point of view to test the effect upon his weight. The experience taught him something apparently, for he continued to improve from that time on with only a few minor setbacks until he reached his normal weight line (Chart III).

Case 4 is that of a boy in whom there were lung findings suggestive of incipient tuberculosis. His diet was poor, and he either would not or could not improve it very much. The notations on the chart indicate the difficulties which prevailed. He has arrived at a point 6 per cent below normal, but will undoubtedly overcome his handicap in time (Chart IV).

Case 5 is that of a boy who worked after school and on

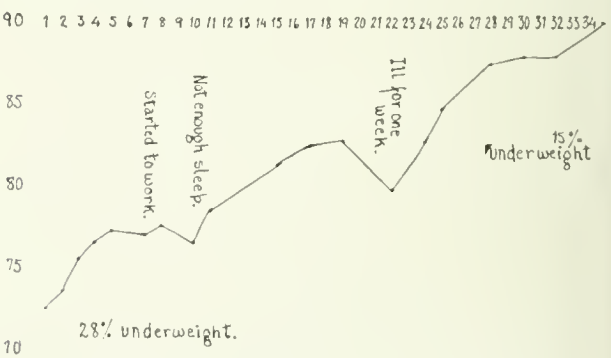


CHART VI.—The graph of Case 6 shows the possibilities of improvement even in the presence of great physical handicaps under the conscientious observance of a corrected regimen.

Saturdays. His physical condition was graded fair, although, aside from his undernourishment, his only defect was extreme dental caries. Improved diet and hygiene, and excellent cooperation produced the result shown (Chart V).

Case 6 is that of a girl 28 per cent underweight. Her

tonsils were moderately hypertrophied, the right lobe of the thyroid enlarged, and she had a left inguinal hernia which was corrected by a properly fitting truss. She had a severe dysmenorrhea, with a consequent anorexia for two or three days each month. She was conscientious, attended class regularly, coming a distance of six or seven miles on the street car. Her normal line is not shown because it was so far above her weight line that shortage of paper would not permit of its being placed within the confines of the chart (Chart VI).

These cases are fairly typical of the general work of the class. The entire class showed an average gain in weight for girls 5.7 pounds, and for boys 6.6 pounds.

HIGH STANDARDS IN HEALTH CARE AT HOTEL McALPIN

By SAMUEL H. MacFARLANE, Hotel McAlpin, New York City.

THE broad interpretation which has of late been placed upon medical services has developed in connection with health activities many phases of welfare work formerly carried on independently, if they were undertaken at all. Any effort to achieve the real welfare of a working body must be twofold: that directed toward the correction or palliation of existing maladies, and the activities which have as their object the supervision and maintenance of conditions conducive to health.

The hospital service in a modern hotel is subject to the requirement of guests as well as of employees. The hospitals provided by the larger hotel corporations conform to the highest standards, and their personnel and organization are nicely adapted to the demands made on them.

The Hotel McAlpin, New York City, has a completely equipped hospital, modern in every respect, in charge of Dr. James A. Harrar, a graduate of the University of Pennsylvania, and Miss Elizabeth P. Harmey who after graduating from the University of Pennsylvania Hospital was for several years chief nurse of the Lying-In Hospital in New York City. Planned as a regular service giving adjunct of the great hotel at the time of its construction eight years ago, the McAlpin Hospital was among the very first to be installed in any hotel in the country, if not in the entire world, and the idea was at once studied and copied by the projectors of other mammoth houses. It is located on the twenty-second floor, very near the top of the lofty McAlpin, where complete quietness is obtained and pure air from mountains and the sea circulates constantly. A modern and completely equipped operating room, with comfortable rest rooms and a suite of reception rooms comprise the hotel hospital. Guests of the hotel are treated in their rooms when ill, and Miss Harmey's staff nurses are assigned to attend them.

Daily clinics for the employees are held at 9 to 10:30 a.m., and 5 to 6 p.m., and first aid is rendered immediately when occasion arises. The work of the physicians and nurses includes the thorough physical examination of every employee, and especially those who come in contact in any way with the food preparation and serving, or even the washing of dishes and laundry department. Although the New York Board of Health requires only one such examination of certain classes of the employees annually the McAlpin management demands that this be repeated every three months.

A Norwegian gentleman who spent a year in this country, for several months of which time he lived at the McAlpin Hotel, and on whom the ever present "flu" had laid a light finger, in a recent letter to Miss Harmey made the following comment:

"The most enjoyable part of my visit to America was the time I was sick in your care at the McAlpin." Although Miss Harmey declares this to be a rather doubtful compliment, she believes him sincere; for he was a good patient, she says, took his medicine regularly, and quickly recovered.

A social worker, who is also a graduate nurse, is employed in this department to visit the homes of the hotel employees, to attend and nurse those who are sick, and to effect a betterment of living conditions wherever possible. That this is no small effort is shown by the fact that on the hotel payroll there are more than two thousand men and women, many of whom are foreign born.

The work of a sanitarian and food chemist in a hotel consists in making tests of samples taken daily of all foods, searching for adulterations and proving food values (*American Press*).

The function of the sanitarian and food chemist, Mrs. M. J. Simmons, working in conjunction with the hospital department, is perhaps entirely unique in American hotel annals. She is a graduate chemist who has specialized in foodstuffs; her work began in Mr. L. M. Boomer's hotels five years ago, creating her own special department at this time. She daily takes samples of all the foodstuffs delivered to the hotel stewards and makes tests, searching constantly for adulterations in the various articles, and proving the butter fat value of the milk and cream.

Mrs. Simmons also looks after the Waldorf-Astoria, Claridge, McAlpin Annex, Woodstock, the Cafe Savarin and the Fifth Avenue Restaurant, of the L. M. Boomer-General Colemand du Pont hotel chain, where her sanitation work includes personal inspection of the kitchens and every space where food of any sort is received, stored, or prepared, as well as the working and living quarters of the employees. In passing, it may be interesting to make mention of the fact that such details as the manicuring of all cooks, waiters, and food handlers are provided for in her program of daily work.

The value of such methods is proved by the fact that during a rigid inspection of the city's hotels and restaurants a few years ago, made by the Department of Health of New York City, the McAlpin hotel won the "white card" for superior excellence in sanitary conditions, it being the only hotel or restaurant to receive such award at the time. "We found measures taken for the sanitary handling and preparation of food and personal care of employees that we did not believe to exist in any institution in the country," read the report of the inspectors on the McAlpin Hotel in the accounts published in the newspapers of the city at that time. The value of such service to an industrial group has been fully demonstrated. The possibilities of the universal application of the principle are unlimited.

INDUSTRIAL MEDICINE AS RELATED TO EFFICIENCY

By JOHN A. TURNER, Ph.G., M.D., Division of Industrial Hygiene and Medicine, Washington, D. C.

THE science of preventive medicine, particularly that branch dealing with industrial sickness and accidents, is receiving at the present time wider consideration, not only from industrial physicians and hygienists, but from the employers of labor, efficiency engineers, labor unions, and a large number of casualty insurance companies. They have all correctly conceived the idea that the efficiency and contentment of workers depend, to an important degree, upon working conditions and on their state of health.

Whether approached from the angle of the interests of the employer or the welfare of the men, a health program in an industrial establishment involves cooperative effort, and presents problems of organization that call out the best purposes and the best talent of all concerned.

All data prove the necessity for such a program. With adequate equipment, the right personnel, and satisfactory relations, the best results in improved health, and efficiency, and in standards of morale are to be achieved.

The best achievement lies in the aroused consciousness of a sense of personal responsibility for health conditions and of the necessity for individual initiative in health practices.

Production naturally is paramount in the minds of employers, as is evidenced by the labor saving machines being invented and perfected; skilled mechanics being employed to keep them in repair and operating to the maximum, while other experts are employed to increase production through the workers by such methods as speeding up, rearranging machinery, obliterating unnecessary motion; but at the same time they neglect a most vital point, "the wear and tear of the human machine." This oversight no doubt is accounted for by the fact that only a medical man, with his knowledge of the human mechanism, can keep the body to a health standard.

It, therefore, being the physician's duty to maintain the health of workers to the maximum standard in order to be successful in his work he must convince the employer that the medical department is of vastly more importance than it has in the past been given credit for. In many instances the medical departments have been handicapped by being under the management of the labor, safety, or production departments, when it should be an independent department. The physician's services are of equal importance to those of the attorneys, yet in few instances is the doctor considered as on a par with him or with members of the plant staff.

Research in Preventive Medicine

The function of the industrial physician is not merely to care for the injured employees, but to prevent injuries and sickness, and to maintain the physical status of the workers to a maximum standard. Although to bring health back to a severely injured man is more attractive and picturesque, yet the homely process of prevention is more essential. In this branch of preventive medicine the physician will find a field in which he can do considerable research work, and one in which he will discover that a vast amount of human waste is the result of having been satisfied merely to care for the wreckage.

In this connection there is also to be considered the economic side of the question previously mentioned in terms of the efficiency of workers, which to an important degree depends upon their health. Maintaining their health to the maximum standard will markedly (1) increase the quality of production; (2) increase the quantity of production; (3) increase contentment, morale, and loyalty; (4) decrease the frequency and severity rates of industrial and non-industrial accidents; (5) decrease the frequency and severity rates of industrial and non-industrial sickness; (6) reduce the absenteeism rates; and (7) reduce the labor turnover rates.

It is through the efficient efforts of the medical service that the above results are to be obtained. A physician doing industrial work, especially that part pertaining to prevention, must first of all consider what he has to work with, that is, the suite of rooms, their location, equipment, and the personnel.

The dispensary, or the suite of rooms used for this purpose, should be located centrally or near the gate, so as to be easily accessible to all departments of the plant. To house the employment department in the same building has this advantage,—an applicant can without delay be taken to the dispensary for his physical examination. The number of rooms for the dispensary will depend upon the amount of work performed; an ideal, or, what may be considered the necessary number of rooms, should consist of a reception room, doctor's office, drug room, surgery, dressing room, clerks' room, ward, toilets, and storeroom.

The reception room should be of sufficient size to accommodate all the patients; it should be equipped with chairs and table. The surgery should be equipped with operating, treating, and instrument tables, cabinets, and all necessary instruments. The appliances should be sufficient to care for even major injuries. The surgical dressing room is a most essential room, as it is where the peak load of the work will be done. The drug room should be well stocked and maintained to standard. Drugs for the relief of trivial illnesses should form an important item. The room for the clerks should be supplied with desks, typewriter, filing cabinets, and all necessary materials. The ward should have partitions to allow segregation of the sexes, provided both are employed. All rooms should have an abundance of both natural and artificial ventilation and illumination. They should be free from noise.

Personnel—the Choice of Physician

The physician should have the privilege of selecting his assistants, as the success of his work will depend largely upon the character, training, and experience of his aides. Nurses are essential to every dispensary. One should have charge of the dressing room and surgery. In a number of plants it has been found advantageous to employ a nurse solely for the purpose of looking up all absentees. After a given waiting period the nurse will call at the home of the employee to ascertain the cause of his absence. If absence is due to sickness, or to caring for a sick member of the family, the nurse will give such assistance and advice as are in her power, and if, because of financial conditions, they are not receiving adequate care, she will communicate with the chief surgeon, when he or an assistant visits the home and takes full charge of the case.

This phase of the work is far reaching in its effects,

chief of which is the effect it has upon the employees. They learn that the employer is interested not only in their welfare while working, but in their home conditions as well. If an employee comes to work knowing his wife or other member of the family is sick, he is bound to worry; on the other hand, if he knows that they are receiving proper medical attention, his mental attitude will be more alert and he can more easily concentrate on his work in a way he otherwise could not do. In a plant where women are employed it is advisable to have a middle aged nurse, one who is endowed with tact and good judgment, in order that she may assist and advise them in personal hygiene. Clerks in the dispensary are necessary to round out the personnel, at least one of whom should be a good typist who is also familiar with filing and cross-indexing.

Medical Service on a Business Basis

Having the dispensary, equipment and personnel, the physician should proceed to place his department upon a business basis and on a par with other departments in the plant by showing at the end of the year a profit in dollars and cents. The first step in placing the service upon a solid foundation is to take an accurate invoice of the plant, that is, a record, in the minutest detail, of the physical condition of the employees and the conditions under which they labor; also, an accurate record of the medical department itself, including rent, heat, light, equipment, supplies, salaries, and all other expenses. It should be his next concern to compute the frequency and severity rates of accidents and sickness for the preceding year, to make an estimate of the cost to the employer and to the employees. This will give a clear picture of the cost for the past year, and comparison with the following year's report will show the loss or gain that has been made.

There are many factors which an industrial physician must consider as causes for lowered efficiency: those directly related to the health of workers may be classified as follows:

Factors Contributing to Accidents

(1) Lack of or inadequate mechanical safety devices. (2) Inadequate illumination, natural and artificial. (3) Condition of machinery. (4) Condition of floors, slippery or uneven. (5) Falling objects. (6) Inadequate ventilation, natural and artificial. (7) Mental and physical condition of workers. (8) Carelessness. (9) Lack of familiarity with work. (10) Lack of instruction in accident prevention.

Causes of Occupational Disease

(1) Dust: vegetable, mineral and metallic. (2) Poisons: organic and inorganic. (3) Fumes. (4) Gases. (5) Smoke. (6) Infectious materials: hides, meats, cutting compounds, etc. (7) Inadequate ventilation, artificial and natural. (8) Lack of protective clothing. (9) Lack of shower baths. (10) Lack of washing facilities. (11) Toilets, accessibility and condition. (12) Inadequate illumination, natural and artificial. (13) Excessive variation in temperature. (14) Humidity. (15) Eating in work rooms.

Non-Industrial Health Conditions

(1) Lack of knowledge in personal hygiene. (2) Improper clothing. (3) Contact with employees suffering from infectious or contagious diseases. (4) Absence of sputum receptacles. (5) Promiscuous spitting. (6) Contaminated water and insufficient supply of palatable water. (7) Inadequate housing conditions. (8) Lack of personal service facilities, or because those present are uninviting and insanitary. (9) Common drinking cups. (10) Common towels. (11) Habits such as alcohol, tobacco, drugs, and over-eating. (12) Improper food. (13) Lack of prophylactic measures against such diseases as typhoid, paratyphoid, and small-pox. (14) Lack of dental service.

Absenteeism and Labor Turnover Rates

(1) Accidents, industrial and non-industrial. (2) Sickness, industrial and non-industrial. (3) Lack of or inadequate personal service facilities. (4) Unsympathetic supervision. (5) Lack of or inadequate medical and surgical relief. (6) Dissatisfaction with wage scale. (7) Housing conditions. (8) Lack of welfare work. (9) Fatigue due to heavy work, overtime, speeding up, lost motion, etc. (10) Physical and mental status of workers. (11) Workers laboring at tasks which they are physically and mentally unfitted to perform.

Take Stock of Physical Assets

In order to invoice the manpower of a plant a careful physical examination needs to be made of each employee, this for the purpose of fitting them to work which they can perform effectively without further impairment of health; also, to correct in so far as possible the defects that exist. Subsequent examinations should be made at regular periods to ascertain the effects of the work upon their health. Those whose occupation is known to be hazardous should be examined at least once a month. Whenever the output of an employee begins to fall off, he should be examnied to determine if it is due to the work. Upon returning after an absence on account of an accident or sickness, an employee should be examined to determine his fitness for resuming work, as lowered physical tone would make him susceptible to subsequent accident. Food handlers should be examined frequently to guard against transmissible diseases. At the outbreak of an epidemic all employees should be inspected daily, for by this means the dissemination of contagious diseases can be kept to the minimum.

Physical and Temperamental Requirements

The physician should thoroughly study the various processes in his establishment and determine the physical and temperamental requirements of each, so that he can intelligently advise in the placement and transfer of the workers. In determining the standards for the various occupations the physician should keep in mind that there are tasks which cripples may successfully perform as this will help to solve the problem of how best to care for the vast number of industrial cripples who might otherwise be discarded: for example, if a man with one arm should present himself at the employment office, the doctor and the employment officer should know what tasks a one arm man can perform. The recent work of the Federal Board for Vocational Education in re-educating and rehabilitating crippled soldiers and sailors, has proved the value of adopting this work for industrial cripples.

Cooperation with Other Departments

A closer cooperation between the medical, employment and safety departments will result in mutual benefits. The physician should give the foreman instructions in accident prevention, in the recognition of the early symptoms of industrial poisons, and as to the best methods of rendering first aid in emergencies. It should also be the function of the foreman to fill out accident reports on all accidents. The routine of this work would keep him on the lookout to prevent future accidents.

The medical department should furnish departmental

heads with a monthly summary report, tabulated by occupations and departments; such a report would no doubt create a rivalry between departments and result in a decrease of accidents, sickness, and absences due to other causes. A copy of the report sent to the safety man would indicate to him the departments requiring his special attention.

Industrial and Non-Industrial Sickness

Industrial and non-industrial sickness plays a very important rôle in the high absenteeism rates and the cost of production. In many instances there is a close relation between accidents and the health status of workers.

That sickness is one of the vital factors causing loss of time is readily seen from this simple statement[1] of the situation: "Summarizing the results of a number of investigations made into the sickness prevalence and its severity in the United States, an average annual loss of working time is reported, for wage earners over 16 years of age, of 6.9 days. With about 40,000,000 wage earners in this country, such a sickness would approximate 276,000,000 working days, or a loss of about 1,000,000 wage earners. This means a wage loss only and does not take into consideration those losses through slowing up of the process, which depends upon the continuous performance of skilled labor, nor the overhead charges of supervision and operations which continue whether or not the workers are present." Nor does it include the loss in efficiency of those who continue to labor while in a physical condition below par and until they are compelled to quit.

Another report[2] shows a still higher rate, the source of data being the records of sick leave of Government clerks in Washington, D. C., 1914: census of population, 16,000; the number of days lost per person, per year of 300 days average 4.8 days. Sickness surveys in various localities by the Metropolitan Insurance Company, 1915 to 1917, census of population, 376,573, the average loss of time being 6.9 days per person per year of 300 days. The New York City Health Department illness census of health district No. 1, 1916: census of population of 20,169 gave an average loss of 8.2 days per person, per year of 300 days. The United States Public Health Service sickness survey of seven textile industries in South Carolina in 1916, with census of population of 2,367 gave an average loss of 17.6 days. The total number of people covered by this report was 415,109; the average number of days lost per person per year of 300 days for this number was 8.6. Reports of this nature obviously points to the facts that industrial physicians have before them a big field of work, for industrial diseases can be eliminated and non-industrial sickness can be reduced even to the extent of 25 per cent. This is a conservative estimate and should prove beyond question the importance of preventive medicine and its effects upon the productivity of factory workers.

Factory Inspections Necessary

In order that the physician may obtain the necessary information relative to the health of the workers and the conditions under which they labor he should make regular and systematic inspections of the factory grounds, buildings, and processes, in making which inspections the following points are to be considered in detail:

Illumination.—Natural illumination is always the best light to work with. Three important points are to be considered: (1) The amount of light admitted through windows, skylights, and open doors; (2) the situation of the work planes in relation to the light areas so as to obtain the maximum without subjecting the workers to direct glare of the sun; (3) the presence of any obstructions, internal or external, which might interfere with an even distribution of light.

It is estimated[3] "that a ratio of illuminating to floor area of one to four or five is adequate for work of a fine character in factories and one to seven, or, one to ten for office buildings." This is true, provided there are no obstructions and the light is evenly distributed to the working planes.

Artificial illumination is necessary in buildings in which the natural illumination can not be had, and for dark days and night work. The essential points to be considered are: (1) the location, number, and intensity of the globes; (2) the protection from glare by such means as reflectors, frosted globes, and the distance from the work planes. That illumination plays an important part in the quality and quantity of production is shown by the following report of the Departmental Committee on Lighting in Factories and Work Shops.[4] In one instance the output of a factory was diminished from 12 to 20 per cent during the hours of artificial lighting; and in another factory the earnings of the workers increased 11.4 per cent after the installation of a better system of lighting.

Ventilation.—Over-crowding, fortunately, is rare; for in most factories the character of the work does not require a sufficient number of workers to make over-crowding a hazard. It is now an accepted fact that the evil effects of crowding of many human beings into confined spaces is due to the increase in temperature and the humidity of the air, and that in such an environment there is decreased physical and mental capacity for work.

The natural ventilation of factories is provided by means of windows, skylights, monitor roofs, and open doors. During the summer months these are likely to be sufficient, but during the winter months, when they are often closed, is the time for the physician to pay particular attention to the natural means of ventilation.

Artificial ventilation is required when the natural means are inadequate and in the presence of excessive heat, poisonous fumes, gases, smoke, and dusts. If the plant has no exhaust system, one should be installed and frequent inspections should be made to ascertain if it is operating properly.

Personal Service Facilities

In making inspections the physician should ever keep in mind the personal service facilities and their relation to the health and comfort of the workers. The location and sanitary conditions of the toilets are of utmost importance—the location, because if placed at a distance and inaccessible, the workers are liable to put off calls of nature, especially to be noted among workers on a piece basis. Insanitary conditions of toilet rooms, such as improper ventilation, light, heat, or a dirty or dilapidated condition, will cause the workers to avoid them, thus inducing chronic constipation, with its many sequelae.

A sufficient quantity of good drinking water is also essential to health, and here, too, the location is important. Sanitary drinking fountains of an approved type should be in every department; samples of the water supply should be taken at regular intervals and subjected to a bacteriological examination in order to prevent an outbreak of water borne diseases.

1. The National Conference Board Research, May, 1918. Proceedings of the Americanization Conference, Department of the Interior, May, 1919, pp. 183-184.
2. Reprint No. 516, United States Public Health Service.
3. Scherewsky, J. W., M.D., United States Public Health Service, Bulletin No. 71, p. 106.
4. Departmental Committee on Lighting in Factories and Workshops, London, 1915.

Each department should have a well equipped wash room, with a sufficient number of bowls, a plentiful supply of hot and cold water, soap in the form of liquid or powder, in sanitary containers, and paper towels. The workers should be instructed to wash their hands and faces before eating, after visiting the toilets, and at the end of the work period. Not only are communicable diseases disseminated by means of the hands, but large quantities of dirt, dust, and poisons are liable to be ingested.

A locker room and lockers of an approved sanitary type should be in each department. It might be desirable to have them in the wash room, provided the room is of sufficient size; otherwise a room adjacent to the wash room may be provided.

A room equipped with showers should be adjacent to the locker room. Showers are not luxuries, but are necessary to keep the workers in a healthy condition. Those who work with dirty materials and those who handle infectious or poisonous materials should be required to take a shower before going home. The shower room should be properly ventilated, heated, and lighted.

Rest rooms, although they are not absolutely necessary in all plants, will go far toward increasing the comfort and contentment of the workers. These rooms should be plainly but tastefully furnished and current magazines should be supplied. In some plants a circulating library has proved of value. Technical and reference books on the particular industry should be available for those who are desirous of enhancing their knowledge in their particular occupation.

A restaurant or lunch room should be in every plant; the food should be of good quality and supplied at cost. In plants where it would not pay to conduct a restaurant, a lunch room should be supplied with tables and chairs and a stove where food and coffee can be warmed, an arrangement which will be especially appreciated during the winter months. It is a hard sight to see employees seeking corners and working material in the work room where they may sit down to eat cold lunches with the added discomfort of the lack of proper facilities for cleanliness.

Education in Personal Hygiene

The plant physician is performing only a small part of his duties if he neglects to instruct the employees in personal hygiene. It is through a systematic course of this nature that the physician will obtain his best results in sickness prevention. Wage earners are just as anxious to prolong their lives as other people, and it is only through lack of knowledge that they fail to observe the hygienic laws.

WORKING OUTPUT

By OUR LONDON CORRESPONDENT.

WHILE preventive medicine is rapidly coming into its own, no branch of it is receiving closer attention or making more rapid progress than that of industrial medicine. It is curious, but true, that although in Great Britain the industrial revolution had its inception and that in this country the care of the public health was founded on scientific lines and developed, the scientific study of the law governing the healthy employment of the human mind and body was strangely late in its development. Up to quite recent years the question has been considered almost wholly from political and charitable viewpoints and no appeal has been made from the scientific aspect, to the laws of physiology, or the test of experiment, which might have shown then as they have shown since that a reduction of hours would have increased industrial output no less than health and human happiness.

However, the stern experience of war with its demands for strenuous and long maintained industrial effort drove home with unerring force the British national lack of knowledge of the elementary and fundamental laws governing human efficiency, and, especially the need for systematic and scientific study of the hours of work, the arrangement of spells of work, and other conditions of labor best calculated to produce the maximum output. Since the beginning of the war the scientific investigators of Great Britain have done a great deal of valuable spade work in this direction. It has been demonstrated conclusively that long hours of monotonous labor are not conducive to large output, good health, or contentment. The first annual report of the British Industrial Fatigue Research Board has been issued recently and naturally provides some very instructive and interesting reading. The Research Board was appointed in July, 1918, by the Medical Research Committee and the Department of Scientific and Industrial Research jointly with the following terms of reference:

"To consider and investigate the relations of the hours of labor and of other conditions of employment, including methods of work, to the production of fatigue, having regard both to industrial efficiency and to the preservation of health among the workers." The Board, which was composed of some of the most eminent scientific investigators and practical men of the country, recognized at the outset that the problem of industrial fatigue could only be successfully attacked by two simultaneous lines of research, the one medical and the other industrial, and they formulated their plan of campaign in accordance with these views. Since the formation of the Board twenty investigations in all have been sanctioned; of these four have been completed and the results published, two and part of a third have been abandoned, nine are now proceeding, and six have not been yet begun.

The most interesting report issued was that of the iron-founding industry. The inquiry was made by Dr. C. S. Myers and the results were published in June, 1919, in Report No. 3, by "A Study of Improved Methods in an Iron Foundry." The report, which indicates the large increase in output following the introduction of scientific methods, caused much interest both in this country and in America. In March, 1919, an investigation having for its object the determination of a reliable test for fatigue was entrusted to Mr. Muscio. After attempts extending over several months, Mr. Muscio reported that he had been unsuccessful and that owing to the impossibility of eliminating will in the subject, there was little probability of devising such a test suitable for practical application. It may be mentioned that part of the investigations were abandoned in the absence of any known reliable test for fatigue. Efforts, however, are still being made to discover such a test and, if these are successful, it is proposed to revive this part of the investigation at a later date. The Board has now resolved to discontinue the inquiry with regard to a satisfactory psychological test for fatigue and to proceed upon physiological lines, which seem to offer a more hopeful prospect. An offer from Mr. B. A. McSwiney, M.B., lecturer in physiology at Leeds University, to undertake research of this subject has been accepted and, as a beginning, arrangements have been made to study the possibility of using the wink reflex and changes in the pulse rate as media for a satisfactory fatigue test.

The work of such a Board is necessarily slow, but already some valuable facts in relation to output and

health have been discovered. It has been shown that short hours of work, especially in some trades, increase output and improve health—which means much the same thing; for if the body and mind are not in a healthy condition and work in unison, output must deteriorate in quality and decrease in quantity. Particularly has it been proved that monotonous toil is detrimental and very producive of a spirit of unrest. Investigations as to industrial fatigue prosecuted here and in America can do nothing but good. There is no doubt that scientific industrial and medical research should be encouraged in every civilized country.

MEDICAL GUIDANCE IN INDUSTRY

Medicine in its proper relation to industry is very ably discussed by S. Dana Hubbard, M.D., in the *New York Medical Journal* of August 14, 1920. Problems of management are thoroughly canvassed and the several functions of the industrial medical officer are fully outlined. There is no use talking in highbrow phrases and neglecting essentials, he says, and the efficacy of the service will depend upon educating the workmen as to what are the prolific causes of both sickness and accident. He emphasizes the need of a comprehensive medical service in industry by the following statements of correlating facts:

There are about forty million people engaged in industry. Of this army of workmen there are about 750,000 who sustain accidents which disable them for a period of more than four weeks' duration. There are about 22,500 industrial workers killed annually, and between 15,000 and 18,000 who suffer permanent disability. The economic waste from these accidents means the loss of working time of over 60,000 laborers, or 18,000,000 work days a year.

Sickness in industry likewise exacts a heavy toll. We are informed from the same source that the average worker loses about nine days a year. This means a loss of one million workers a year, or 360,000,000 days a year, both of which, estimated at an average per diem wage, means a stupendous amount in dollars and cents. This is the loss simply from sickness and accident; to this must be added the loss of production, the cost of medical and nursing service and medical supplies, and sundry expenses, which make a sum running into the billions. There is no greater problem before the country today than that of caring for the industrial worker, and there is no one in this country who can better cope with this situation than the properly trained and equipped industrial physician.

CANADIAN COMMITTEE ON INDUSTRIAL FATIGUE

A committee on Industrial Fatigue, under the honorary Advisory Council for Scientific and Industrial Research, has recently been established by the Canadian Government. The functions of this Committee are purely advisory and investigatory. Its general purpose is to make the knowledge and experience of medical science, as it bears on industrial health and efficiency, available for all industry.

The main objects of the Committee are: (1) to offer manufacturers the assistance of scientific laboratories in solving the health problems presented by particular processes in their plants; (2) to offer all interested the use of the Committee's intelligence bureau, where the most up-to-date information on general and specific problems of industrial hygiene is kept; (3) to cooperate in investigations into the conditions in different industries; into the incidence and causes of sickness, whether occupational or general; and into the actual relation existing between hours of work, working environment, etc., and production.

The Committee is composed of professors from the University of Toronto, Laval University, McGill University, and Dalhousie University, and representatives of the women's organizations, the Department of Labor, and one representative of industry. An office has been established in the Medical Building of the University of Toronto. The Committee plans later to establish offices in the chief industrial centers of Canada.

FEES ON GRADUATED INCOME BASIS

There is reported in *The Lancet* of July 3, 1920, an important experiment in providing a complete medical service for the staff and work people of a London, England business house. The experiment was inaugurated on a small scale some time ago by Messrs. Thomas de La Rue & Co., Ltd., and has met with such success at their hands that the company is now commending it to other employers.

The kernel of the matter is that a number of consulting physicians and surgeons have agreed to treat privately at reduced fees patients sent to them by the company, the fees to be based upon what is described as "adjusted income." This includes private means as well as salary, one-fifth of the total being deducted on account of each child or other dependent member of the household. The fees payable vary from 10 to 60 per cent of the norm for operations and from 25 to 100 per cent in the case of consultations and medical treatment, a minimum of a guinea for a single visit being payable in all cases. In order to insure that cases are not sent to the consultant staff without due cause, a certificate is required in each case from the company's medical adviser, the patient then going on to the consultant with a voucher stating the proportion of the normal medical fee payable by him. The company thus constitutes itself as almoner to private practice, relieving the consultant of the onus of making tiresome inquiries.

A further proposal is now made with a view to the provision of a great central nursing home for the reception of employees from a number of business houses at reduced fees, it being suggested that a private institution of this kind with a large number of beds could be run at considerable less expense than at present prevails in the smaller nursing homes now available. Mr. Stuart de La Rue states that his scheme has so far received the whole-hearted support of the medical profession.

PROTECT WORKERS IN COMPRESSED AIR

The German Minister of Labor has decreed that medical supervision of the health of all persons working in compressed air is compulsory. If the pressure is over 1.3 kg. per square centimeter, the physician must live near the place where the work is being done and be accessible at all times. With a pressure of 2.5 kg. the continuous presence of the physician is imperative. Men under twenty and over fifty must be excluded from compressed air work.

Many a good judge would be hurtful if he did not get through newspapers and magazines a diluted kind of sociology which saves him from bondage to mere precedent.—*Ross.*

THE MEDICAL DEPARTMENT OF THE FULTON BAG AND COTTON MILLS

By D. T. HEYSER, M.D., Director of Medical Service, Atlanta, Ga.

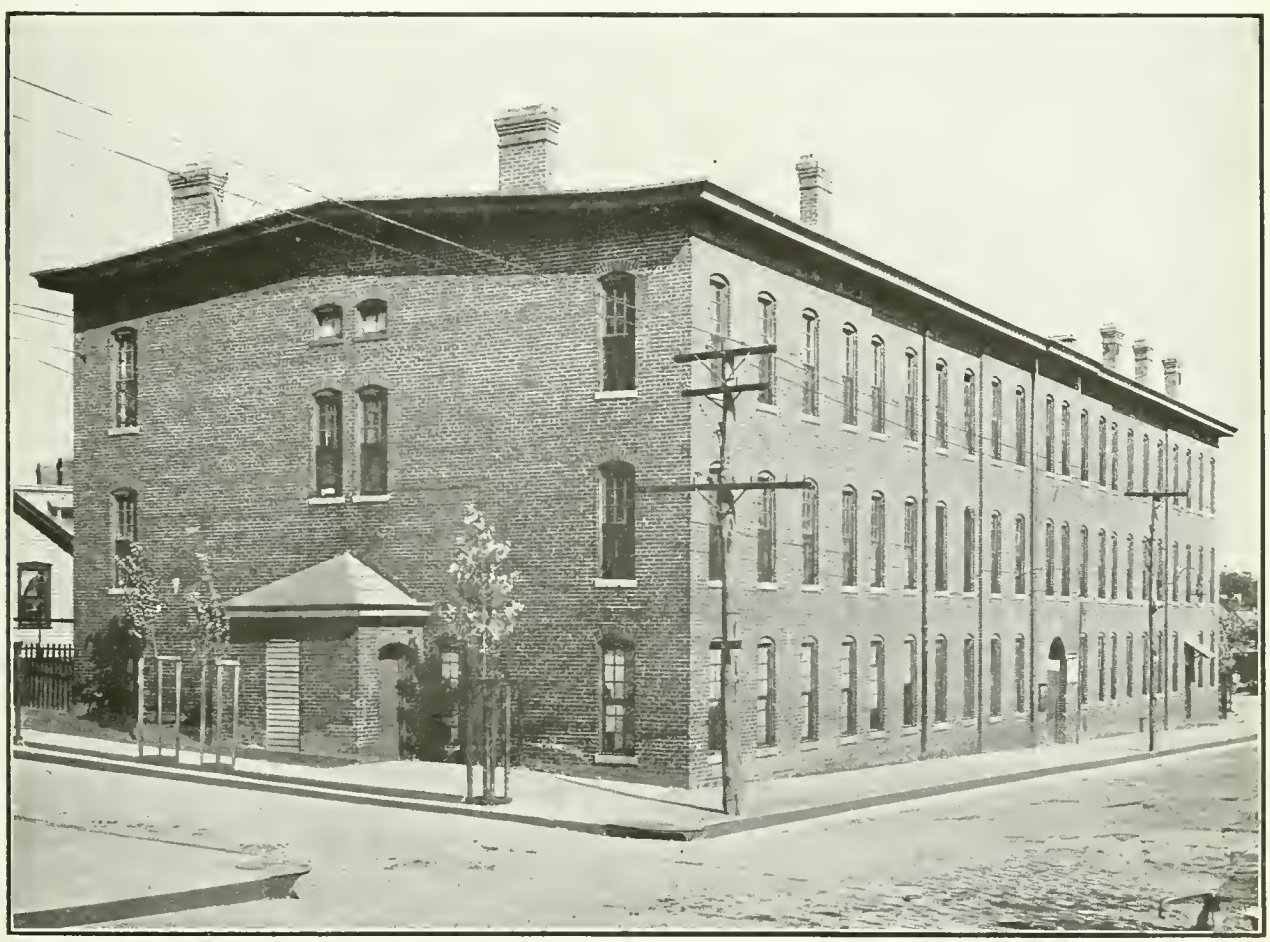
IN THE past few years the attention of manufacturers has been directed as never before to the human factor in industry—to its recruiting, to its maintenance, to its conservation. Corporations recognize today that the health of employees is one of their first considerations both for humanitarian and for good business reasons, arguing on the hypothesis that a well man does his work well while a sick man does his but ill. With this as a starting point the medical work mentioned and developed by manufacturers has assumed a status of national importance and a public health work of the highest order, carrying out the spirit of the proverb that "an ounce of prevention is worth a pound of cure."

The Medical Department of Fulton Bag & Cotton Mills, of Atlanta, has been developed steadily and consistently in response to the need of our employees, until today it is ministering not only to its two thousand employees, but to the wives and families of employees as well.

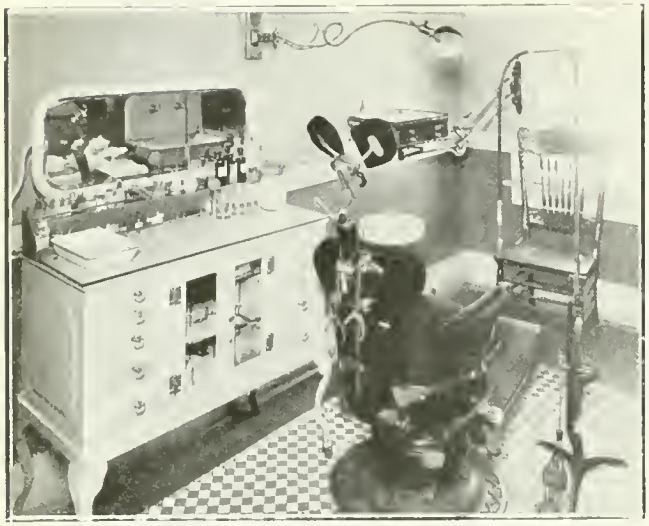
In order to maintain an adequate medical department, a suite of rooms has been set aside in the Fulton Club House, separated physically from the other activities of the Service Department, but working in close cooperation with all departments and their members.

At the head of the medical work there is a full time physician, resident in the medical suite and subject to call at any time, who visits the sick employees or any member of the family in the home, and in addition has regular office hours in two different offices in the plant in order to reach a larger number of patients. The fact of residence makes him an important influence, for employees understand that his services are available at any time.

On the staff of the hospital there are three trained nurses, two of whom devote a large part of their time to visits in the home of employees, the list of absent employees being sent to the medical department early each morning by the employment manager. These visiting nurses do bedside nursing, give instruction in home and personal hygiene, work in connection with the educational department to keep children in school, and report to the doctor daily such employees as they find in need of his attention. The resident nurse has charge of the dispensary, giving out drugs as called for by the doctor's prescription; she also attends to minor accident cases, redressings and other hospital duties as the head nurse as directed by the physician in charge.



The Fulton Club Building wherein are located the hospital, dental, and medical departments. It contains a cafeteria, and gymnasium which provides facilities for indoor games. Here also are conducted a night school and kindergarten instruction classes.



The dental department is open every day in the week except Saturday. Treatment is given at the bare cost of the service.

A small first aid hospital is one of the first requirements of an industrial medical department, and a majority of plants stop at this point. In addition to this room however, there are in the Fulton Hospital two small wards of a three bed capacity each, in which are cared for the more serious accident cases, acute non-contagious illnesses, and confinement cases either of employees or members of their families.

In addition to the full time staff of medical workers the company employs a dentist who gives two and a half hours daily except Saturday to the care of the teeth. The number of patients runs gratifyingly large—200 patients monthly, or about 10 per cent of the total number employed. The dentist also instructs his patients in oral hygiene and prophylaxis.

Both visiting nurses conduct nutrition classes once each week—each class numbering twenty boys and girls who are suffering from malnutrition. These children respond readily to right feeding and build up rapidly as a result of following out the prescribed diet. As each one "graduates" his place is filled by a child on the waiting list.

A semi-monthly nasopharynegeal clinic conducted by a visiting specialist has met with excellent response and marked success. The fee charged in each case is nominal, and the four to six operations monthly are largely tonsil and adenoid removals. Other operations are done when necessary. Many children especially benefit by this clinic.

For the babies there is a regular weekly clinic under the auspices of a baby specialist. There is also a visiting physician who regulates the diets and gives advice and treatment as necessary. His services are free to all wives of employees and women employees who have children.

Mothers who must work may bring their children to the day nursery where for the very small fee of five cents per day they are cared for all day. Each child must be examined by the doctor upon admission, and the doctor and nurse see the children daily. A special room is maintained for prompt segregation of any ailing child to prevent danger of infection. Drills in hygiene are given the children at regular intervals by doctor and nurses, and the children are taught something of the proper physical care of themselves.

The nurses give much attention to prenatal work—instruction as to living, food, exercise, etc.—and they care for the mother at confinement if she comes to the company hospital; if, however, she refuses to do so, she must provide her own physician. This is, of course, to insure proper sanitary surroundings and treatment, and to guard against well meant but often deadly intervention of family and friends.

The dispensary carries a complete line of the requisite drugs. These are supplied on prescription to employees at cost.

A treatment and clinic room is provided for the separate handling of chronic illnesses, such disorders receiving the regular care of an experienced house physician.

An important phase of the medical work is with persons with venereal disease, both men and women. Such patients are treated at the hospital clinic, and given printed instructions how to care for themselves as well as how to prevent infecting others. Results here are slow, of course, but are increasingly good.

The number of cases treated shows more convincingly the scope of the work. The number of office visits to the doctor average five hundred monthly, while the total number of patients for the month in all phases of the medical work is about one thousand six hundred.

We do not feel that we have attained our goal, however, with the work even at this stage of growth. As the overcrowding of our facilities demands, we expect to enlarge various phases of our activities and add others, feeling assured of the permanent value of the medical department and its ideal of service to the persons with whom we have our daily intercourse.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

PUBLIC HEALTH EDUCATION AND THE LAMAR BEQUEST

It will be remembered that a generous sum of money, reported to total about ten millions of dollars, was left under the Lamar will to the medical schools of Harvard, Johns Hopkins, and Columbia, to be devoted to the furtherance of the cause of Public Health. The will was so worded as to make no sharp distinction between the intimately related fields of medicine and public health, and the bulk of the endowment is available for the building up of fundamental medical departments such as bacteriology and physiological chemistry. The testator did, however, specifically provide that a portion of the fund should be utilized for the dissemination of knowledge to the public in regard to the science and art of healthy living; and the plans of the three universities for complying with this requirement are of special interest.

Harvard, as we understand, is planning to fulfill the Lamar bequest by an expansion of the admirable system of public lectures on medical and hygienic topics, which have for some years constituted a feature of the scientific life of Boston. Johns Hopkins has annonnced the establishment of a new technical journal, the *American Journal of Hygiene,* which under the editorship of Dr. Welch will be of the greatest value as a medium for the publication of important original contributions to the subject. Such an organ, which will fill the place of the English *Journal of Hygiene,* has long been needed in this country since the *American Journal of Public Health* cannot well handle long and technical contributions, and the *Journal of Bacteriology* and other organs in allied fields are overcrowded. Finally, Columbia has developed a third distinct line of service by appointing Dr. Haven Emerson director of a Lamar Bureau of Public Health Information, which will supply accurate and complete data in regard to current public health practice, particularly to the medical and nursing professions and to the public health worker himself.

It will be noted that neither of these plans contemplates an attempt to deal directly with the exceedingly difficult problem of educating the "ultimate consumer" of public health science, the average citizen, who must make its final application in his or her daily life. It is of great importance that the teacher should be taught, and the work to be undertaken at Harvard, Hopkins, and Columbia under the Lamar bequest will fill important gaps in the general scheme of public health education. It is clear, however, that the time is coming when we must pay more serious attention to the technic of public health propaganda as applied to the education of the general public. How far are the efforts devoted to lectures and exhibits, to circulars and monthly bulletins, to newspaper articles, to "Baby Specials," and "Health Cars" really effective? Do they catch the attention of the individuals they are designed to reach? Do they teach a lesson so clearly that it can be grasped by the majority of those who hear it? Do they produce an impulse to a change in conduct which will cause the intellectual concept which has been imparted to bear fruit in good works?

We do not know the answer to these questions. In the past, we have never attempted even to study them by the exact and rigorous methods which we apply to the criticism of the subject matter of our propaganda. (Some of us, alas, do not apply such criticism even to the alleged facts we attempt to teach.) At last, however, the technic of public health propaganda is coming to be recognized as a proper subject for serious scientific study. Mr. and Mrs. Routzahn, of the Russell Sage Foundation, are at present conducting an intensive investigation along these lines, and we may hope that the next few years will witness an improvement in the machinery for disseminating knowledge in regard to health, comparable to the development of that body of knowledge itself. Editor.

PUBLIC HEALTH AND COST OF LIVING

Special attention has been devoted in recent years to study of the relationship between the economic welfare of groups and communities and their health condition. It has frequently been observed that economic insufficiency and ill health are closely associated, though it is sometimes difficult to ascertain which is the cause and which the effect. The illuminating symposinm on "Poverty and Disease" under the leadership of Professor Winslow[1] at the 1919 National Conference of Social Work, clearly indicated the harmful effects of the operation of this vicious circle.

The infant mortality studies of the Children's Bureau also emphasized the apparent relation between family income and infant mortality. More recently the studies by Dr. Royal Meeker of the Bureau of Labor Statistics on the standard of living in its relation to the health of the family revealed an utter lack of provision in a large proportion of family budgets for adequate medical, hospital, and nursing attention.

It is to be expected, therefore, that the steadily increasing cost of living since 1914 will have some effect on the public health. As pointed out by Doctor Dublin in a

1. 1919 Proceedings of the National Conference of Social Work, p. 153.

memorandum on the relation of wages and prices,[2] "when a dollar buys less goods, many persons have to go without the necessities of life or in other ways must lower their standard of living unless there is a corresponding increase in wages to make up for the lower purchasing power of the dollar."

In March, 1920, wages in New York state showed an increase of 119 per cent over June 1914; but during the same time wholesale prices increased 156 per cent. From experience of previous post-war periods we may expect wages to increase until they reach at least the level of commodity prices.

As observed by Dublin, the mortality statistics have not yet revealed any ill effects of the increased cost of living. Health conditions appear to be even better than before the war. Much of this may be due to the health educational and food conservation propaganda of governmental and private agencies during the war. The remarkable decrease in the death rate from pellagra in the South is an index of improvement in the dietary standard of southern wage earners.

Health workers can be particularly helpful in overcoming the evil effects of a decrease in real wages by instructing the public in the substitution of cheaper foods for the more expensive, also in the principles of diet and other hygienic matters. JULES SCHEVITZ.

THE ANNUAL REPORT

HEALTH officers no longer consider the annual report solely as a means of fulfilling the requirements of the law, to be hurriedly prepared in odd moments, and a task to be delayed as long as possible. They recognize in the annual report a wonderful opportunity for health education and, more especially, they see in it a chance to gain the interest of the enlightened citizenship and busy business man in the work of the health department. Without such support the health officer is losing sight of one of his most valuable opportunities for effective cooperation.

Whether the annual report will serve this purpose depends on the manner in which the facts are presented and the display which they receive, more than in the striking importance of the facts themselves. If it is the desire of the health officer to present a report intended for filing, to be laid away with hundreds of similar reports in the archives of the community or state—and forgotten—he will pay no attention to its form of presentation. He will furnish his long and uninteresting tables, a little descriptive matter, perhaps a few charts, and let it go at that. On the other hand, if he wishes to make his report useful as well as merely to comply with the law, he will take advantage of every known method to render it interesting, attractive, and readable. The most scientific and valuable reports have their usefulness to the community greatly impaired by failure to keep in mind these few facts.

All annual reports should be printed, and should be given as wide a distribution as funds will permit. The health department is supported by public funds, and all the people are entitled to know how the funds are expended. Through this knowledge they will learn something about the problems, successes, and failures of the department. Looking at it from another viewpoint, it is distinctly to the advantage of the health officer to have the contents of his report generally known in the community. Once the people really understand the work his department is undertaking, the health officer has in the annual report a means of overcoming one of his greatest obstacles, namely, lack of funds. It is rare indeed to find an instance of non-support where the people really know what the health department is attempting.

It is evident, therefore, that in addition to serving a rather formal end, the annual report can act as a means of insuring sound financial support for the department in addition to securing an enlightened and intelligent public interest. It should require no great array of facts or display of logic to convince the health officer of the truth of these statements.

In order to receive a hearing by the people the report must compete in appearance, form, and layout with other material reaching the readers. This can be done by using good paper, clear type, plenty of photographs, and other graphic materials; by transferring as many tables as possible in the form of appendices to the end of the report; and by presenting the whole subject in a simple and interesting manner. Matters of scientific interest only should be reprinted separately and made available to those especially interested. JULES SCHEVITZ.

2. Statistical Bulletin, Metropolitan Life Insurance Company, 1920, i No. 5, p. 13.

CONJUGAL TUBERCULOSIS

THE question of the extent of conjugal tuberculosis is more significant than the mere determination of the frequency of infection of the consort by the tuberculous mate. It involves the larger questions of whether there is such a thing as adult infection. There has been a tendency in recent years to minimize the importance of conjugal tuberculosis and adult infection; but late studies, particularly by Minnig[1] and Ward[2] appear to challenge these views. Assuming that the normal incidence of tuberculosis in the general population is about 2.7 per cent, the findings of these two authors indicate that there is such a thing as conjugal or marital tuberculosis.

In a review of the literature on the subject Minnig concludes that the findings of all investigators indicate a larger percentage of tuberculosis in the consort of an infected wife or husband than in the general population. In his personal investigations, covering 1,000 successive dispensary cases, of whom 502 were married, he discovered active tuberculosis in husband and wife in 44 cases, or 8.7 per cent. Of the 44 cases, half of the consorts had died of tuberculosis.

Ward, in England, after a study extending over several years, finds that 58 per cent of the consorts whose mates have tuberculosis sooner or later develop signs and symptoms of active tuberculosis, though a great many of these recover. The following table prepared from Ward's data shows that while 58 per cent of the consorts of infected mates develop tuberculosis, only 20 per cent of all other contacts in the family become actively diseased.

RESULTS OF EXAMINATIONS OF CONSORTS OF INFECTED MATES, AND OTHER CONTACTS

Distribution	Number Examined	Tuberculous		Suspects		Negative	
		No.	Per cent	No.	Per cent	No.	Per cent
Wives (Husbands Tuberculous)	120	66	55	12	10	42	35
Husband (Wife Tuberculous)	36	25	69	4	11	7	20
Total	156	91	58	16	10	49	32
Other Contacts	1,057	219	20	284	17	564	53

1. Minnig, Arnold: Incidence of Tuberculosis in Husband and Wife, Jour. Amer. Med. Assn., 1920, lxxiv, No. 2, p. 1445.
2. Ward, E.: Conjugal Tuberculosis, Lancet, London, 1920, cxcvii, 606.

It is to be remembered that these figures refer almost entirely to patients in the laboring classes; also, that no allowance is made for cases in which both mates had the disease previous to marriage. The apparent wide difference in the percentage of marital infection shown in Ward's figures from those of other investigators may possibly be due to varying standards of classification employed.

If it be true that marital infection is as prevalent as these and other figures indicate, and that adult infection is frequent, it is essential that our tuberculosis workers modify their present methods in the care of the tuberculous in their homes. JULES SCHEVITZ.

BARBER SHOP DANGERS

FROM all quarters of the country there has come a growing insistence for greater protection to the barber shop patron against infection, particularly of venereal origin. State health departments are recognizing the menace of careless methods in the barber shop, especially in the use of infected implements and the employment of infected barbers, and are regulating against these dangers. Most notable have been the efforts of the Louisiana Health Department.

A correspondent in England* suggests protection from another angle in demanding that the law should make it a criminal offense punishable by imprisonment, for any person to use a barber's shop while suffering from or under treatment for certain diseases. A certificate of health should be required before diseased individuals may use the shop. He presents the following interesting comments on the dangers in the barber shop:

In the present age of reform it is remarkable how our reformers seem to have greatly neglected the dangers to public health that are ever present in the barber's shop, a place resorted to by the healthy and by the diseased, where you wait your turn and take your chance. One and all come into contact with the same lather, brush, razor, sponge, and towel. And what a chance you take,—a chance of contracting some specific disease, it may be a disease fraught with terrible consequences, not only to yourself but to others. You may think that the odds against this happening are remote. Even if they are remote, is it right to take such odds?

That dangers referred to are real and operative can be testified by physicians and health workers everywhere. The methods employed in the sterilization of razors and brushes, especially after being used on infected individuals, and also the not uncommon occurrence of an infected barber attending to a healthy patron, are serious menaces to the public health that demand most careful attention. JULES SCHEVITZ.

A CHANGE IN NAME

IN line with similar action taken by other state tuberculosis organizations, the Board of Managers of the New York State Charities Aid Association has changed the name of the Association's Committee on Prevention of Tuberculosis to the Committee on Tuberculosis and Public Health. According to the Committee, the change in name does not imply change in objects or methods but is simply a recognition of what has been the fact for several years.

The scope of anti-tuberculosis work has steadily broadened in the light of experience. The agreement between the National Tuberculosis Association and its auxiliaries, under which the Christmas seals are sold, contains a working definition of anti-tuberculosis work which for some years has recognized several phases of child hygiene as essential elements in it. Recently the definition was further amended so as to include various forms of child hygiene. JULES SCHEVITZ.

*Lowe, Harry: The Barber's Shop, Municipal Engineering and the Sanitary Record, London, May 13, 1920, No. 1589, p. 415.
1. S. C. A. A. News, March, 1920.

BUNK AND BUBONIC PLAGUE

Writing under the above caption in the Chicago *Tribune* of September 1, W. A. Evans, M.D., gives the following history of the introduction and spread of plague in this country:

Bubonic plague has the firmest foothold on this country that it has ever had. It found it way into California in 1900. Thanks to interference by the courts and by powerful business, political, and religious influences, it became so firmly intrenched during the three years that no effort to control it was made, that an occasional animal infected with plague is found, and just one year ago there was a small human outbreak.

Having got a foothold in New Orleans several years ago, the disease has held on. Last November there was another human outbreak. This year cases of human plague have been reported from several other gulf ports. The disease has been in the country for twenty years, and not all the effort and expense have availed to eradicate it.

This experience teaches two lessons. The first is that bubonic plague does not menace our people with any great disaster. The second is that the disease, once it gets a foothold among the rats and certain small flea infested wild animals, is only cleaned out with the greatest difficulty. Cities back of the seaboard are sitting back in easy satisfaction. They say they are safe because though the disease has been in the United States twenty years it has never got fifty miles from the seaboard.

Almost overnight a railroad train carried the infection from San Francisco to Los Angeles about fifteen years ago. The distance from San Francisco to Los Angeles by rail is almost as great as the distance from New Orleans to Chicago.

Dr. W. H. Kellogg in his report of the Berkeley epidemic of 1919 said that the seaboard cities were not in great danger of pneumonic plague, the most terrible variety of the disease, but woe unto the cities of the northern and eastern sections of the United States should the infection ever spread to their rats.

The United States public health service thinks the danger great enough to warrant it in calling on the public to kill off the rats. The Illinois Board of Health reprints the public health service bulletin and the Chicago health department is launching an anti-rat campaign.

Rats are important from the public health standpoint because they spread bubonic plague, catarrhal jaundice, and rat bite fever, intestinal parasites, and Trichina. They are important from the economic standpoint because of the enormous amount of food they eat.

The average cat or dog is not a success in preventing rat infestation. The use of poisons at best is haphazard and uncertain. A preparation of arsenous acid, 10 per cent, with cheese meal, meat, or grain, is the most popular poison. The prerequisite of successful trapping is that no food other than the bait shall be available.

The only effective procedure is rat proofing of buildings. It does no good for one man to kill the rats on his place unless his neighbors kill theirs. A rat has been known to travel one mile in two days and several times rats have traveled two or three miles in two weeks. The British Indian rat commission confirms the opinion that halfway anti-rat measures accomplish nothing.

A PERSONAL HYGIENE DEMONSTRATION

By M. EDGAR ROSE, M.D., Director, Division of Child Hygiene, New York State Department of Health, Albany, N. Y.

HEALTH protection, as it should at the present time and will in the immediate future be conceived of, comprises essentially the health education and supervision of every individual from conception to dissolution. In its broadest sense this includes, in addition to the control and regulation of the environment, animate and inanimate, such instruction and continuous supervision as will, within natural limitations result in the bringing of all pregnancies to safe completion; the birth of all children and their growth and development free from defect, disease, or disability; the preventing or at least the delaying of the degenerative changes of adult life; and the discovery and proper treatment at the very earliest possible moment of disease, defect, disability or degenerative change so as to produce the largest possible number of individuals each of whom shall have the greatest possible healthful and useful longevity. This is the ideal which must be striven for. It is obvious that the coincident perfecting of social relations and economic and industrial conditions is a *sine qua non*.

TABLE I.—Movement of General Mortality and Morbidity from Certain Important Causes of Death in New York State, Showing General Death Rate per 1,000 Population and Average Death Rates per 100,000 Population for Groups of Years: 1885-1917.*

	General Death Rates	Pulmonary Tuberculosis	Typhoid Fever	Measles	Scarlet Fever	Whooping Cough	Diphtheria
1885-1889 ..	17.5	207.6	22.9	17.9	28.1	16.7	100.6
1890-1894 ..	20.5	212.8	27.2	17.2	26.1	16.3	90.5
1895-1899 ..	17.9	190.1	23.2	15.2	11.6	14.6	55.7
1900-1904 ..	17.2	175.9	22.8	13.1	14.5	10.2	39.9
1905-1909 ..	16.4	165.1	17.5	13.5	12.3	8.7	28.8
1910-1914 ..	15.2	150.0	12.0	11.0	10.7	7.9	20.8
1915-1917 ..	14.6	140.4	6.4	8.6	2.7	7.7	16.3

*Prepared from the Annual Report of 1917, New York State Department of Health.

A Measure of Results

The results of the modern health movement which began with the sanitation of the environment and followed with the control of community infection have been striking; the extension and constant and progressive improvement in the carrying out of the now well established methods and procedures, which there is every reason to anticipate, will undoubtedly eventuate in the practical elimination of those diseases which depend essentially upon adverse environment.

The third, and what will most probably be the final stage in the evolution of the health protection movement, namely, that of personal hygiene, has now been entered upon. The campaign for the control of tuberculosis, while concerning itself primarily with the control of community infection, has necessarily and properly entered to a considerable extent into the field of personal hygiene; the campaign for the reduction of infant mortality, now extended to include the broader field of child hygiene, while coming into more or less intimate contact with questions of infectious disease, has been the first to concern itself predominantly with personal hygiene. With the exception of limited efforts by special groups such as the military services, life insurance companies, the Life Extension Institute, and some commercial and industrial organizations, the hygiene of adult life has been untouched.

The need for intensive work to cover the entire field of personal hygiene, a need which has always existed, has not been at all realized in the past and is today but very partially, vaguely, and indifferently appreciated by the general public. While the more enlightened public health workers have grasped the full significance of the importance of such efforts, for a number of well known reasons they have been unable to meet the need in any but a very superficial manner, except in certain communities and with regard to certain special phases. It may be of interest briefly to indicate some of the most salient features of this need, and for this reason the following is submitted. Mortality and morbidity statistics, believed to be sufficient to indicate what the more complete records show as substantiating the following general statements, are hereto appended.

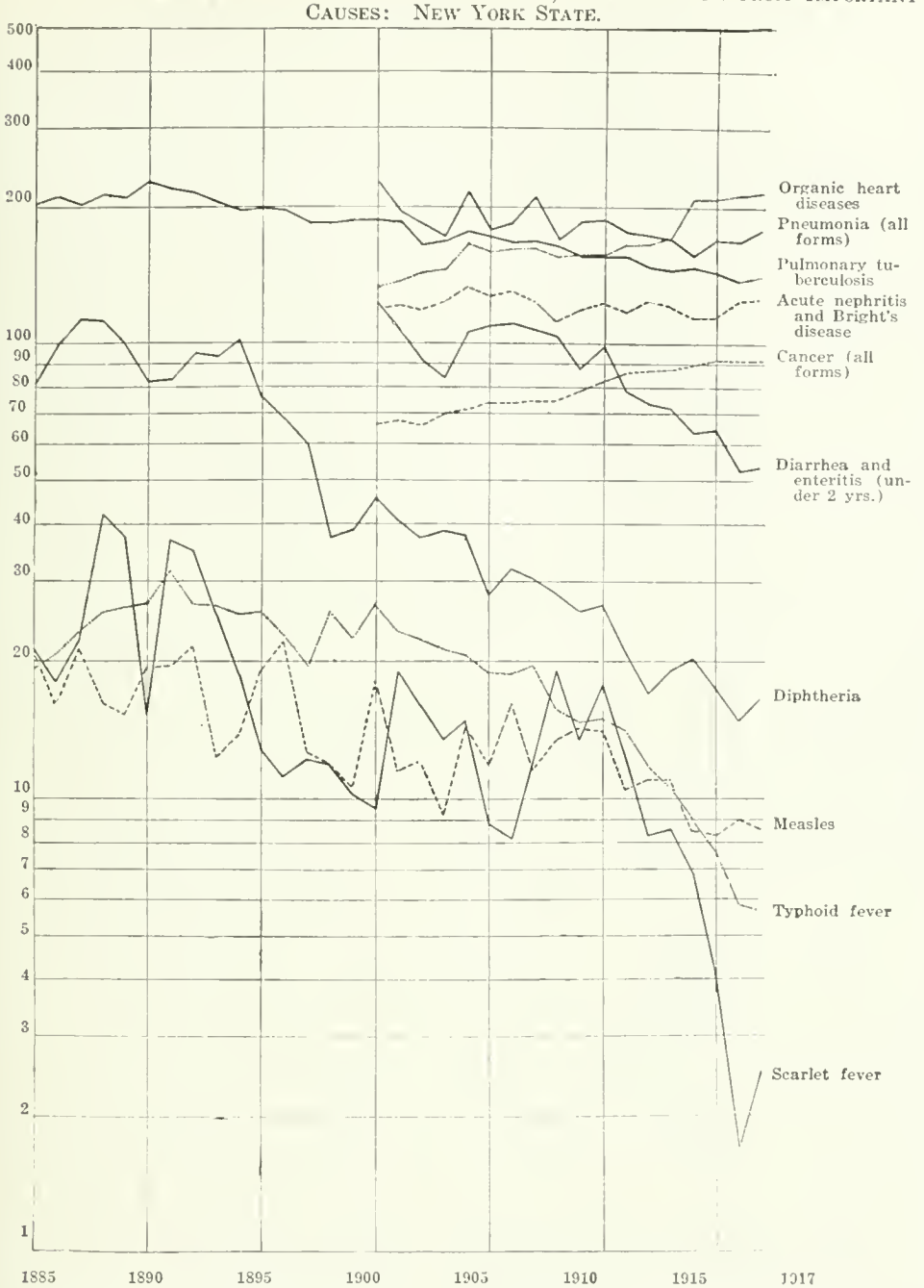
In the United States as well as in the other civilized countries of the world, the general death rate has been falling steadily for a number of years. An analysis of specific death rates will reveal the fact, however, that this decline has been most pronounced in the younger age groups, *i. e.*, in infancy, childhood, and early adult life, and particularly in the group of communicable diseases which affect more especially the younger members of the community. In middle and later adult life there has been an appreciable increase in mortality, the degenerative changes affecting the circulatory and renal systems, and cancer are now taking a larger toll at earlier ages—a condition which obtains in few of the European countries; it is notably absent in England, Wales, and the more im-

TABLE II.—Movement of General Mortality and Morbidity from Certain Important Diseases in New York State per 100,000 Population.*

	Pneumonia, all forms	Diarrhea & enteritis under 2 years	Apoplexy (cerebral hemorrhage)	Organic heart and endocarditis	Disease of arteries & arterio-sclerosis	Disease of Cardio Vasc. System	Acute Nephritis Bright's Disease	Cancer
1885-1889	....	....	....	....	....	....	....	....
1890-1894	....	....	....	....	....	....	....	....
1895-1899	....	....	....	....	....	....	....	....
1900-1904	201.1	102.1	79.9	144.7	7.9	232.6	122.7	67.9
1905-1909	185.4	103.4	74.8	158.7	20.2	253.5	122.4	75.0
1910-1914	172.5	77.1	62.2	173.5	43.3	279.0	119.9	86.3
1915-1917	172.1	56.7	63.7	211.9	42.9	318.6	121.3	92.0

*Prepared from the Annual Report of 1917, New York State Department of Health.

TABLE III.—Movement of Death Rates per 100,000 Population from Important Causes: New York State.



This chart is so constructed that equal vertical distances represent equal *ratios* rather than equal absolute differences. Curves changing at the same *rate* are parallel; of two curves changing at different *rates*, the one with the greater *rate of change* is steeper.

portant of the north continental group, and the result in this country is an index of the character and intensity of the efforts heretofore made.

Statistics Are Fragmentary

While mortality statistics are sufficiently complete and accurate, for obvious reasons those relating to morbidity are as yet very fragmentary. Aside from what is shown by clinical experience and records, by figures obtained through examinations such as those of life insurance groups, or of school children, and those of the military services—notably for the recent draft—estimates must be relied upon as indicating what is generally accepted as being true, namely, the fact that very few individuals of any age group are free from preventable or remediable disease, defect, or disability and that the span of really healthful and useful life is far shorter than it should be.

The causes for the above mentioned conditions with regard to mortality and morbidity in our population are essentially ignorance, neglect, and those factors often referred to as the stress and strain of life, the latter including vicious habits and unfavorable social, economic, and industrial conditions. The remedy is obvious. The methods and procedures which should be followed have been sufficiently developed and the results obtained of a character so satisfactory as to warrant a continuance and an extension along the lines laid down. The only logical plan, in theory, would be one comprehensive enough to include all members of the community, and this should prove successful in practice. In view of the fact that child hygiene activities are concerned with the mother and children, it should be feasible and much more economical to include also the father and other adult members of the household. As to what agencies should undertake and carry on this work there can be no question when the matter is viewed in the broad light which it merits. The public as a whole, being the great loser and potentially the great gainer, should carry it on as it does cultural education. Up to the present, as previously indicated, the major portion of health protection activities with which public health authorities have concerned themselves have, for well known and proper reasons, been more especially the performance of duties and the exercise of powers in connection with the sanitation of the environment and the control of community infections—activities commonly recognized as being of a police character. While excellent work is being done and good results secured in the field of child hygiene, that only a beginning has been made will be better appreciated when the statement is offered that in New Zealand the infant mortality rate has been reduced to below 50, due to a well thought out and efficiently executed plan of campaign largely the result of private enterprise and financial support. In this country as a whole, and even in New York state, there are

still too few municipalities where the child hygiene activities are being carried on by the public authorities. In so far as adult hygiene is concerned, none of the municipalities has as yet even made a beginning.

Health Demonstration Effectual

Experience in New York state and elsewhere in connection with other lines of public health activity, such as tuberculosis, has shown that, to secure the adoption and efficient and continued execution of any comprehensive efforts, there is no method which can approach in efficiency that of an actual demonstration. It is believed that the conducting of a demonstration in the personal hygiene of childhood and adult life showing the need for and the means of carrying on such work would result in the very prompt adoption of this work by practically all municipalities of the enlightened commonwealths of the Nation.

Such demonstration should be conducted in a city of approximately 75,000 population, be continued for at least three years, and preferably five, and have the hygienic viewpoint rather than the clinical. The need for medical and surgical care and treatment should be demonstrated and should be sufficient to stimulate, and if adequate provision is not already existent, it should be provided by the community. The cooperation and assistance, including that of a financial character, of all local organizations, should be enlisted and retained. The cooperation and aid of the state health department is essential. It should be understood that what is here recommended has no connection with state medicine, health insurance, or any of the other similar measures now being widely considered. The scope and character of the activities which should be undertaken may be briefly outlined as follows:

I.—Education and instruction of the general public and of special groups in the problems presented by mortality and morbidity and their solution, in order to arouse the necessary interest and secure the support and cooperation so essential to the success of any such undertaking.

II.—Instruction in physiology and personal hygiene should be (1) compulsory in public schools, but (2) voluntary for all adults.

III.—Specific instruction and supervision by physicians

TABLE IV.—Movement of Mortality by Important Ages and from the Leading Causes of Death in New York State: 1917 Compared with 1916, and with the Average for the Quinquennium 1911-1915.

AGE OR CAUSE OF DEATH	1917		1916		1911-1915 (Annual average)		Increase or Decrease: 1917 over 1911-1915		Per cent of Change in Rate, 1917 over 1911-1915	
	Number	Rate*	Number	Rate*	Number	Rate*	Number	Rate*	Increase	Decrease
Total deaths	154,127	14.7	151,543	14.7	145,186	14.9	+8,941	−0.2	....	1.3
Under 1 year	22,473	91	22,731	94	24,570	106	−2,097	−15.	....	14.2
1-4	8,955	85.4	10,887	105.7	10,071	103.5	−1,116	−18.1	....	17.5
Total under 5 years	31,428	299.6	33,618	326.4	34,641	356.2	−3,213	−56 6	....	15.9
5-64	79,052	753.5	76,068	738.5	62,600	643.6	+16,452	+109.9	17.1	....
65 years and over	43,577	415.4	41,828	406.1	47,843	491.9	−4,266	−76.5	....	15.6
Unknown	70	....	29	....	102	....	−32	....	....	....
Typhoid fever†	593	5.7	603	5.9	1,023	10.5	−430	−4.8	....	45.7
Measles	904	8.6	928	9.0	956	9.8	−52	−1.2	....	12.2
Scarlet fever	259	2.5	178	1.7	775	8.0	−516	−5.5	....	68.8
Whooping cough	894	8.5	745	7.2	763	7.8	+131	+0.7	9.0	....
Diphtheria	1,755	16.7	1,524	14.8	1,845	19.0	−90	−2.3	....	12.1
Influenza	1,694	16.1	2,267	22.0	1,300	13.4	+394	+2.7	20.1	....
Tuberculosis (all forms)	16,632	158.5	15,820	153 6	16,338	168.0	+294	−9.5	....	5.7
Pulmonary tuberculosis	14,795	141 0	14,069	136.6	14,338	147.4	+457	−6.4	....	4.3
Tuberculosis meningitis	1,077	10.3	1,081	10.5	1,131	11.6	−54	−1.3	....	11.2
Other forms	760	7.2	670	6.5	869	8.9	−109	−1.	....	19.1
Cancer (all forms)	9,736	92.8	9,419	91.4	8,593	88.3	+1,143	+4.5	5.1	....
Diabetes	2,281	21.7	2,151	20.9	1,822	18.7	+459	+3.0	16.0	....
Cerebrospinal meningitis	314	3.0	301	2.9	328	3.4	−14	−0 4	....	11.8
Acute anterior poliomyelitis	92	0.9	3,351	32.5	121	1.2	−29	−0.3	....	25.0
Cerebral hemorrhage, apoplexy	6,796	64.8	6,471	62.8	6,109	62.8	+687	+2.0	3.2	....
Organic heart disease and endocarditis	22,626	215.7	21,837	212.0	17,919	184.2	+4,707	+31.5	17.1	....
Arteriosclerosis	4,825	46.0	4,466	43.4	4,258	43.8	+567	+2.2	5.0	....
Bronchitis	1,850	17 6	1,857	18.0	1,926	19.8	−76	−2.2	....	11.1
Pneumonia (all forms)	18,673	178.0	17,314	168.1	16,449	169.1	+2,224	+8.9	5.3	....
Bronchopneumonia	6,604	62.9	6,942	67.4	7,023	72.2	−419	−9.3	....	12.9
Lobar and unqualified	12,069	115.0	10,372	100.7	9,426	96.9	+2,643	+18.1	18.7	....
Diarrhea and enteritis (under 2 years)	5,624	53.6	5,387	52 3	6,819	70.1	−1,195	−16 5	....	23.5
Appendicitis	1,191	11.4	1,231	12.0	1,176	12.1	+15	−0 7	....	5.8
Hernia, intestinal obstruction	1,285	12.2	1,267	12.3	1,202	12.4	+83	−0 2	....	1.6
Cirrhosis of liver	1,319	12.6	1,412	13.7	1,602	16.5	−283	−3.9	....	23.6
Acute nephritis and Bright's disease	13,136	125.2	12,801	124.3	11,506	118.3	+1,630	+6.9	5.8	....
Diseases of the puerperal state	1,333	12.7	1,231	12.0	1,334	13.7	−1	−1.0	....	7.3
Puerperal septicemia	469	4.5	429	4.2	467	4.8	+2	−0.3	....	6.3
Congenital debility and malformations	7,784	74.2	7,868	76.4	8,213	84.4	−429	−10.2	....	12.1
Old age	885	8.4	1,015	9.9	1,510	15.5	−625	−7.1	....	45.8
Accidents	9,274	88.4	8,196	79.6	7,798	80.2	+1,476	+8.2	10.2	....
Automobile accidents	1,066	10.2	820	8 0	486	5 0	+580	+5.2	104.0	....
Drowning	994	9 5	1,102	10 7	1,039	10.7	−45	−1.2	....	11.2
Suicides	1,441	13.7	1,492	14.5	1,490	15.3	−49	−1.6	....	10.5
Homicides	426	4.1	403	3.9	436	4.5	−10	−0.4	....	8.9
All other causes	20,505	195.5	20,008	194.3	21,575	221.8	−1,070	−26.3	....	11.9

*Total births and deaths per 1,000 population: deaths under 1 year per 1,000 living births (infant mortality rate); death rates for other ages and by causes per 100,000 total population.
†International List of Causes of Death.

TABLE V.—Number of Deaths in the State (Exclusive of New York City) by Age Period, Sex, Color, General Nativity and Marital Condition: 1917.

AGE AT DEATH	Total Deaths			Color							
				White		Negro		Indian		Chinese—Male	Japanese Male
	Total	Male	Female	Male	Female	Male	Female	Male	Female		
Total deaths...	75,552	40,435	35,117	39,699	34,569	668	509	51	39	12	5
Under 1 year..	9,908	5,680	4,228	5,598	4,150	75	73	6	5	1	....
1.....	1,648	847	801	826	783	20	17	1	1	....	....
2.....	777	425	352	415	347	9	5	....	....	....	1
3.....	478	266	212	263	205	2	7	1	....	....	....
4.....	355	189	166	184	164	5	2	....	....	....	....
Total under 5	13,166	7,407	5,759	7,286	5,649	111	104	8	6	1	1
5- 9	1,153	624	529	617	518	6	11	1	....	....	....
10-14	761	406	355	399	340	5	12	2	3	....	....
15-19	1,248	671	577	647	552	21	21	3	4	....	....
20-24	2,070	1,150	920	1,102	888	45	28	3	4	....	....
25-29	2,408	1,372	1,036	1,330	1,012	37	22	3	2	2	....
30-34	2,536	1,417	1,119	1,361	1,081	48	30	5	5	....	3
35-39	2,849	1,680	1,169	1,634	1,141	43	28	1	....	1	1
40-44	3,198	1,886	1,312	1,830	1,282	54	30	2	....	....	....
45-49	3,680	2,148	1,532	2,088	1,499	54	33	3	....	3	....
50-54	4,161	2,378	1,783	2,322	1,742	48	39	6	2	2	....
55-59	4,893	2,747	2,146	2,704	2,117	40	27	2	2	1	....
60-64	5,434	3,023	2,411	2,991	2,389	30	21	1	1	1	....
65-69	6,356	3,345	3,011	3,311	2,974	32	35	2	2	....	....
70-74	6,726	3,382	3,344	3,352	3,318	25	22	4	4	1	....
75-79	6,195	3,008	3,187	2,972	3,167	33	19	3	1	....	....
80-84	4,796	2,158	2,638	2,143	2,628	15	8	....	2	....	....
85-89	2,651	1,093	1,558	1,082	1,550	10	7	19	1	....	....
90-94	965	393	572	384	563	8	9	1	....	....	....
95-99	206	74	132	74	131	....	1	....	....	....	....
100 and over..	30	17	13	17	11	....	2	....	....	....	....
Unknown	70	56	14	53	14	3	....	....	....	....	....

and public health nurses at home and at health centers.

(1) *Maternity* care to include:

(a) Hygiene of pregnancy and of early infancy: (i) Through at least monthly visits throughout pregnancy to health center until end of sixth month and every two weeks thereafter; (ii) literature to be given mother to acquaint her with principles of hygiene of pregnancy and of early infancy.

(b) Puerperium: (i) Daily visits through the fifth day and at least two other visits during the second week by physician or nurse.

(c) Continuous health supervision from birth for every infant.

(2) *Infancy and pre-school period* would require instruction, with demonstrations, to mothers in the care and feeding of children at least once a month throughout the first year and at regular intervals throughout pre-school period.

(a) Instruction to mothers at home would present the (i) value of breast feeding; (ii) technic of nursing; (iii) technic of bath, sleep, clothing, ventilation, and general care of baby; (iv) preparation and technic of artificial feeding; (v) dietary essentials and selection of food for infant and for older children; and (vi) prevention of disease in children.

(3) *School children* should be supervised as to:

(a) Personal hygiene and diet, and (b) home visits planned to advise and instruct mothers in

TABLE VI.—Number and Percentage of Deaths at Each Age Period in the Entire State, New York City and Rest of State: 1917.

	State of New York		New York City		Rest of State	
	Deaths	Per cent	Deaths	Per cent	Deaths	Per cent
Total deaths—all ages	154,127	100.0	78,575	100.0	75,552	100.0
Under 1 year...	22,473	14.6	12,565	16.0	9,908	13.1
1.....	4,740	3.1	3,092	3.9	1,648	2.2
2.....	1,980	1.3	1,203	1.5	777	1.0
3.....	1,266	.8	788	1.0	478	.6
4.....	969	.6	614	.8	355	.5
Total under five years.	31,428	20.4	18,262	23.2	13,166	17.4
5- 9	2,853	1.9	1,700	2.2	1,153	1.5
10-14	1,730	1.1	969	1.2	761	1.0
15-19	2,821	1.8	1,573	2.0	1,248	1.7
20-24	4,649	3.0	2,579	3.3	2,070	2.7
25-29	5,527	3.6	3,119	4.0	2,408	3.2
30-34	6,182	4.0	3,646	4.6	2,536	3.4
35-39	7,120	4.6	4,271	5.4	2,849	3.8
40-44	8,046	5.2	4,848	6.2	3,198	4.2
45-49	8,916	5.8	5,236	6.7	3,680	4.9
50-54	10,004	6.5	5,843	7.4	4,161	5.5
55-59	10,343	6.7	5,450	6.9	4,893	6.5
60-64	10,861	7.0	5,427	6.9	5,434	7.2
65-69	11,180	7.3	4,824	6.1	6,356	8.4
70-74	11,096	7.2	4,370	5.6	6,726	8.9
75-79	9,404	6.1	3,209	4.1	6,195	8.2
80-84	6,737	4.4	1,941	2.5	4,796	6.3
85 years and over	5,160	3.3	1,308	1.7	3,852	5.1
Unknown	70	.1	....	...	70	.1

TABLE VII.—Movement of Infant and Childhood Mortality in State of New York, Showing Average Infant Mortality and Per Cent of Total Deaths Under One Year of Total Deaths from 1905 to 1917 and Average Per Cent of Deaths Under Five Years of Total Deaths from 1885 to 1917, Inclusive, Arranged in Five Year Periods, Except the Last, Which Is a Three Year Period.*

	Infant Mortality	Per cent of deaths under one year to total deaths	Per cent of deaths under five years to total deaths
1885-1889	...	...	34.9
1890-1894	...	...	32.0
1895-1899	...	...	30.7
1900-1904	...	...	27.0
1905-1909	140	18.9	27.5
1910-1914	112	17.3	24.6
1915-1917	94	15.3	21.8

*Prepared from 1917 Annual Report, New York State Department of Health.

TABLE VIII.—Pre-School Period. Results of Physical Examinations at New York City Baby Health Stations, of Children of Pre-School Period.

Defects found	Number	Per cent
Defective teeth	780	34.5
Defective nutrition	550	24.6
Hypertrophic tonsils	550	24.6
Defective nasal breathing.....	528	23.
Orthopedic defects	184	8.2
Defective vision	84	3.7
Pulmonary diseases	57	2.5
Cardiac disease	40	1.8
Nervous disorders	31	1.6
Defective hearing (428 children not examined for this)	29	1.6
Total examined	2,228	100.
Total found with general defects.	1,295	58.1
Total found with defects of teeth only	287	12.8
Total defective children	1,582	71.0

*Prepared from New York City Health Department Bulletin.

TABLE IX.—School Children (Estimates of Dr. Thos. D. Wood) 22,000,000 School Children in United States.

(1)	At least 1%, or 200,000 mentally defective.
(2)	Over 1%, or 250,000 at least—organic heart disease.
(3)	At least 5%, or 1,000,000 have now or have had tuberculosis.
(4)	Five per cent., or 1,000,000—defective hearing unrecognized—gives many reputation of being mentally defective.
(5)	Twenty-five per cent, or 5,000,000—defective eyes.
(6)	Twenty per cent. at least, malnutrition.
(7)	From 15 to 25%, 3,000,000 to 5,000,000—adenoids, diseased tonsils or other glandular defects.
(8)	From 10 to 20% or from 2,000,000 to 4,000,000 have weak foot arches, weak spines or other joint defects.
(9)	From 50 to 75% or from 11,000,000 to 16,000,000 have defective teeth.

principles of hygiene, nutrition, and the selection of family diet.

(4) *Adolescents* require to receive:
- (a) Ample diet and special attention to growth-producing foods;
- (b) Sufficient sleep, rest, and fresh air;
- (c) Adequate and suitable clothing;
- (d) Recreation and proper exercise for physical development; and
- (e) Knowledge of sex hygiene and reproduction.

(5) *Adults* need adequate care to insure:
- (a) Proper diet;
- (b) Sufficient sleep, rest, and fresh air;
- (c) Adequate and suitable clothing;
- (d) Recreation and exercise;
- (e) Suitable occupation and prevention of occupational strain and poisoning; and the
- (f) Correction of vicious habits.

IV.—Periodic examinations by physicians should include:

(1) Maternity cases, covering:
- (a) Complete physical examination as early in pregnancy as possible, including examination of heart, lungs, abdomen, and urine and the taking of blood pressure.
- (b) Internal examination and pelvic measurements before seventh month in primipara.
- (c) Examination of urine every four weeks during early months, at least every two weeks after sixth month, and more frequently if indicated.
- (d) Wassermann test, when indicated.
- (e) Examination before discharging patient from observation, at a date not later than six weeks after delivery.

TABLE X.—Analysis of Physical Causes for Rejection for Service in the U. S. Navy and Marine Corps, 1916, as Given in Report of the Surgeon General of the Navy.

		Per cent
Number of men examined	82,592	
Number of men rejected for all causes	51,167	62
Causes of rejection:		
Eye	9,452	11.4
Underweight	5,397	6.5
Flatfoot	5,028	6.08
Defective teeth	4,878	5.9
Deformities	3,533	4.3
Varicocele or varicose veins	3,105	3.8
Heart affections	2,302	2.8
Height, under	2,124	2.6
Poor physique	1,633	2.0
Ear	1,376	1.7
Genito-urinary venereal	1,347	1.6
Hernia or tendency to	1,312	1.6
Skin disease	1,094	1.3
Pyorrhoea	896	1.08
Height and weight, under	921	1.1
Tuberculosis or suspects	909	1.1
Tonsillar conditions	588	.72
Genito-urinary, non-venereal	548	.66
Nasal abnormalities	476	.67
Febrile conditions	381	.46
Mental disorders	302	.36
Goiter or tendency to	294	.35
Defective speech	132	.15
Miscellaneous causes	2,820	3.41

(2) *All infants and pre-school children* should receive periodic examination and weighing and measuring, which should be under the supervision of a physician.

(3) *For school children* there should be:
- (a) Complete standardized basic physical examination once a year;
- (b) Determination of weight and height at beginning and at end of year;
- (c) Monthly weighing;

TABLE XI.—Analysis of Typical Industrial, Commercial, and Insurance Groups (Figures Derived from More Than 10,000 Cases) (Fisher and Fisk).

	Men av. age 34 Per cent	Women av. age 25 Per cent	Men av. age 26 Per cent	Women av. age 26 Per cent	Life insurance av. age 37 Per cent
No physical impairment reported: no modification of living habits required	0	0	0	0	0
Slight physical impairment or defect requiring observation or hygienic guidance	10	23	10	12	6
Moderate physical impairment or defect requiring some form of hygienic guidance or minor medical, dental or surgical treatment	41	54	52	58	63
Moderate physical impairment or defect, medical supervision or treatment advised in addition to hygienic guidance	35	19	27	21	21
Advanced physical impairment or defect requiring systematic medical supervision or treatment	9	4	9	9	7
Serious physical impairment or defect urgently demanding immediate attention	5	0	2	0	3

- (d) Special medical examinations of children referred by teacher or nurse; and
- (e) Examination by psychiatrist of all atypical or retarded children.

(4) *Adolescents* should have complete standardized basic physical examination, including weight and height, at least once a year.

(5) *Adults* should be subjected to:
- (a) Complete standardized basic physical examination at least annually, preferably semi-annually, including blood pressure determinations and, when indicated, Wassermann tests, x-ray, and other special diagnostic procedures; and (b) urinalysis quarterly.

V.—Hygienic and corrective treatment should be recommended.

VI.—Follow-up work should be undertaken by nurses to see that all such recommendations are carried out, and

VII.—Health records should be kept for every individual throughout life.

Proper Care and Treatment

VIII.—The corrective measures and agencies should be as follows:

(1) General and special hospitals; dispensaries and clinics for maternity cases, children, etc., and for tuberculosis, venereal diseases, dental, eye, ear, nose, throat, skin, and orthopedic clinics would be required.

(2) Open air clinics and rest periods would need to be provided for pre-tuberculous and certain tuberculous children and children with grave malnutrition.

(3) Special classes for children needing some form of special instruction due to physical or mental defect.

(4) Nutrition classes for physically sub-normal chil-

dren, to include (a) maintenance of mid-morning lunch or hot noonday meal when necessary.

It is to be understood that the above is intended for the entire population. A certain proportion of this, approximately between 40 and 50 per cent, should, and as the result of education most probably will, utilize private agencies such as physicians, nurses, etc. For the remainder of the population it will be necessary to provide an organization, which for a city of 75,000 population should as a minimum be as follows:

In such a community there would be about sixteen thousand families, with approximately 4.6 persons per family; in the case of the groups whose social and economic status is such that they either cannot or will not avail themselves of private physicians, this figure is considerably larger. The number of pregnancies can be estimated as between one thousand eight hundred and two thousand; of children under two years of age, at 3,000; from two to five years, inclusive, at 4,000; of school age—five to sixteen years—at 14,000; and of adolescents and adults, at 52,000.

I.—The central organization should include in its personnel:		
(1) A director (physician)	$5,000	
(2) A supervising nurse	2,500	
(3) A supervisor of social work	2,500	
(4) An office force:		
(a) Secretary-stenographer	1,200	
(b) Two clerks at $1,000	2,000	
		$ 13,200
II.—The field organization would follow the health center plan and would require three unit districts, one to each 25,000 population.		
(1) Health center superintendent (nurse)	$ 1,800	
(2) Nursing staff of eight, at $1,200 each (One to each 75-80 families)	9,600	
(3) Social service staff of three, at $1,200 each (One to each 300 families)	3,600	
(4) Instructor in food and nutrition	1,800	
	$16,800	
Three units at $16,800		50,400
III.—All three centers would be served by the medical staff:		
(a) Obstetrician on full time to handle fifty patients a day, one monthly visit per patient	$ 3,000	
(b) Physicians—eight on full time, at $3,000	24,000	
		27,000
Children from 0-2 would run 60 patients a day per physician, and children from 2-5, 54 patients a day per physician. Adolescents and adults would number 20 to 25 patients a day per physician.		
IV.—The school children would be supervised by a unit for each school, as follows:		
(1) Physicians, three on full time, service at the schools, at $3,000 each	$ 9,000	
(2) Nurses (service at the schools), six, at $1,200	7,200	
(3) Instructors in food and nutrition—two for all the schools at $1,800, one day a week in each school	3,600	
(4) supervisor and director for tests for vision and hearing	600	
(5) Attendance officer, a trained nurse, as 75 per cent of absence is due to illness	1,200	
		21,600
V.—Laboratory service	$ 2,500	
VI.—Initial equipment, supplies, miscellaneous expenses, and contingent fund	5,300	
		$120,000

VII.—Volunteers may be employed for such work as clerical, etc., which may be needed.

Utilize Present Facilities

It is to be understood that in many of the municipalities of this size, as, for example, in any of the second class cities of New York state, there are at present available some of the facilities, such as school physicians and public health nurses. These should be utilized as part of the organization outlined.

For special diagnostic examinations and consultation services the facilities of the local hospitals and their staffs should be employed. These institutions should also provide additional nursing service, thus affording an excellent opportunity to give practical instruction in public health work to their pupil nurses.

Quarters and their upkeep should be provided by the community. Clinical care and treatment should be supplied by the hospitals, dispensaries, and clinics. If these prove to be insufficient, no better means for securing the necessary additions could be had than the actual demonstration of such needs. The treatment of communicable disease, being properly the function of the health authorities, should be provided accordingly.

Dental service has not been included in this outline, as it is essentially therapeutic and should be provided in the same manner as is other treatment. The physicians of the organization should be qualified to discover the need for such care and treatment. The necessary social readjustments should be looked after by the social workers of the organization, who should discover any need for economic relief and refer same to the proper charitable organizations. Where remediable unfavorable industrial conditions obtain, this should prove the most efficient means for securing the necessary corrective changes.

After the selection of the municipality in which the demonstration is to be conducted, which choice should depend upon the assistance—financial and otherwise—and cooperation promised, a detailed survey of specific needs and existing agencies should be made as the first step.

Such demonstration requiring the expenditure of substantial sums of money, can of necessity be financed only by some private organization concerned with public health matters. However, careful consideration of the entire project, viewed from every standpoint, leads to the conclusion that, if possible, it would be highly desirable and advisable to secure some of the funds needed from local sources, either through municipal appropriations, private subscriptions, or both. Perhaps at present the bulk of such local financial assistance would be procurable only from local private sources. As a suggestion it is submitted that about one-third of the total of $120,000 *per annum* needed, or $40,000, be so provided, the remaining two thirds, $80,000, to be donated by the outside organization. The history of similar ventures has been such, as a rule, that when the need for and value of the work being demonstrated and privately financed has been shown, no difficulty was encountered in having the municipality assume the entire burden. There is no reason to anticipate that in this case the same result will not ensue. As to the feasibility of any of the municipalities assuming such burden, the following is offered: There are now seven cities of the second class—50,000 to 175,000 in population—in the state of New York, with an average population of 102,727. The *per capita* appropriation for police, fire, and health protection averages for each of the seven cities 2.54, 2.51, and 0.65, respectively. The individual figures as of July, 1919, for the several cities are as follows:

	Syracuse	Albany	Yonkers	Schenectady	Utica	Troy	Binghampton
Police	2 66	2.75	3.32	1.66	1.80	2 45	2.08
Fire	2 82	2.96	2.21	1.54	2.62	1 96	2.50
Health	.68	.42	.79	.51	.43	.23	.36

If, for example, Utica or Troy would take on this work at the rate of $125,000 annually in addition to what either at present spends, the total per capita for health protection would be but $1.90 in the case of Utica (10 cents per capita more than it now spends for police protection and 72 cents less than for fire protection); and in the case of Troy $1.89 per capita (56 cents less than is now spent for police and 7 cents less than for fire protection).

The Span of Life Increased

In conclusion, it is submitted that not only can and should the mortality be reduced, but to even a greater degree the morbidity; not only the mere span of life increased but, what is of far greater importance, the useful and healthful portion thereof extended. The method for most effectively attacking the problem of the prevention and early remedying of disease, defect, and disability beyond the reach of measures aimed at the control and regulation of the environment has been indicated; its efficient execution would bring such results as to make the expenditure of effort and finances negligible. It is believed that the demonstration recommended would prove to be one of the most notable achievements in the modern health protection movement.

CRIPPLES IN NEW YORK CITY

THERE are in New York City about thirty-six thousand cripples, according to the findings of a survey recently made. The survey was inaugurated by the representatives of forty-one organizations, associations and hospitals engaged in work for cripples, at a conference which was the result of the efforts of the New York Committee on After Care of Infantile Paralysis Cases. The expenses were met by contributions from certain of these agencies and a liberal gift from the Rockefeller Foundation.

The responsibility for the after care of the survivors of the 1916 infantile paralysis epidemic in New York City has since that time been vested in the above named Committee, representing all the agencies interested in these children. This Committee provided a system of follow-up, including necessary financing, transportation, and home care, which proved so beneficial in its results on the thousands of cases recorded that the Committee early in 1919 resolved to find whether all the city's needy cripples were being cared for and, if not, the extent of the unmet need.

The survey was made under the direction of Mr. Henry C. Wright, of the Hospital and Institutional Bureau of Consultation. The aim was to ascertain the number of persons crippled in New York by different causes, and the nature of care and treatment that is being given to them, with the chief emphasis on the causes which produce cripples. Instead of surveying the entire city, which would have been a very large task, six typical districts, having an aggregate population of 110,000 people, were selected. In these districts a house-to-house canvass was made. When cripples found had not been diagnosed at a recognized clinic or hospital, an orthopedic surgeon was sent to the home to make a full diagnosis. The statistics of causes and classifications thus obtained are reasonably accurate. In addition to the field canvass, the work of all organizations, hospitals, and institutions dealing with cripples was examined to determine its character and scope. The full report has been published in book form and distributed widely by the New York Committee on After Care of Infantile Paralysis Cases.

The Report defines a cripple as "one handicapped by some limited or distorted use of muscles, joints or skeletal members." This was interpreted to exclude the blind, the aged, and the mentally defective. Children with rickets were included only when the disease took the form of obvious physical deformity. Flat feet were not included, inasmuch as flat foot seldom is much of a hindrance to earning a livelihood. The Report confirms previous knowledge that crippling conditions arise chiefly during childhood. It found that of those crippled after the age of 15, 61 per cent were crippled by amputations or traumatic conditions, whereas these causes produced less than 8 per cent of the cripples under the age of 16; and during this childhood period 65 per cent of the crippling conditions were due to poliomyelitis and congenital conditions, if rickets be excluded.

The inference is drawn from the investigation that bone tuberculosis is on the decrease. Of the cases found, 88 per cent were children under fifteen years of age.

An interesting comparison is made between the incidence of bone tuberculosis found in New York City and in Birmingham, England. Among children the incidence in New York City showed a percentage of but 6.4, while in Birmingham it was 39.5 per cent. Infantile paralysis was the cause of crippled condition in 44 per cent of the cases of children, which corresponds very closely to the 41 per cent found in Cleveland during a corresponding survey in 1915-1916. Inasmuch as the survey in New York City was made subsequent to the epidemic of 1916, and the survey in Cleveland previous to that epidemic, the close correspondence of these two percentages would give some ground for inferring that the incidence of poliomyelitis during a period of years is fairly constant, irrespective of an occasional epidemic.

A competent orthopedic surgeon passed upon all cases in their homes that had not been disagnosed by some recognized clinic or hospital. On the basis of his findings it is estimated that there are in the city fully one thousand cases of bone tuberculosis, Potts' disease, and poliomyelitis not having been diagnosed or treated. Of the cases not previously diagnosed, about 25 per cent showed a good prognosis; about 20 per cent, prognosis good provided braces or appliances were supplied and used.

It was found that a large number of cases cease to go to clinics after treatment has been begun. It was estimated by the survey that fully 3,700 cases in New York City afflicted with one of the three before mentioned diseases, having started treatment in clinics, had not been attending for six months. These neglected cases call for closer central registration and supervision.

The Report in substance states that a comparatively small number of operative beds are needed, provided there be a sufficient number of convalescing beds; that clinical facilities need not be so large if combined with home treatment; that transportation requirements will be correspondingly small if home treatment is used; that the services of the surgeon will be called for very little in connection with infantile paralysis cases, provided proper care is given to the case during the acute stage of the disease. As a result of such care, almost no deformities resulted to children during the epidemic of 1916.

INDIANS AND HEALTH

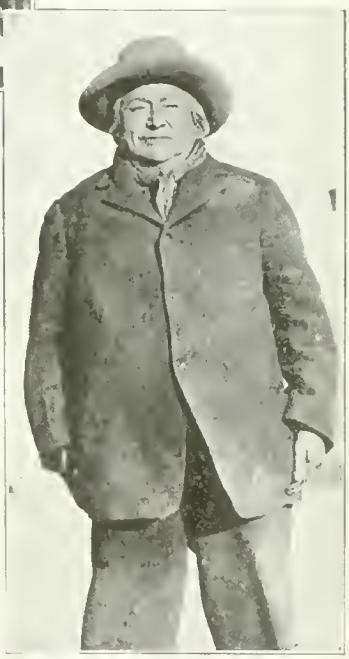
Times have certainly changed. It wasn't many years ago that when a crowd of Sioux Indians got together of an afternoon there was usually a considerable amount of battle, murder, and sudden death in the air. According to the story books, the proceedings usually opened with firewater and scalpings, and closed with an entertainment in which a paleface, tied to a stake, was the chief performer.

But nowadays things are different. When the Sioux Indians in Minnesota get together it is to listen to public health lectures delivered in their own language, and frequently by members of their own tribe. There is a great deal of tuberculosis among these Indians, and the American Red Cross is endeavoring by means of these lectures to educate them in preventive measures against the disease. The old chief, Two Hawks, is an eloquent lecturer for the Red Cross. And a certain squaw, who had never before appeared in public, prefaced her remarks with the statement that if her audience were not composed of ladies and gentlemen she wouldn't talk to them.

A hundred years ago it would have been a brave paleface who would have delivered a lecture to an audience of Sioux. Some such lectures were delivered, but they were usually in the nature of deathbed remarks. Today, however, the Indians look upon these things differently, and they are eager to learn all the good that the Red Cross can teach them. The Indians are now self-organized for health work and they are concerned with their own hygienic problems as well as interested in relief work for refugees overseas.

Indian Members of the Browning, Mont., Red Cross Chapter who helped in the knitting of sweaters and scarfs for soldiers and refugees overseas. The Indians shown are the following: 1, Mrs. Sarah D. Wilbur, Field Matron (an Indian); 2, Mrs. Medicine Owl; 3, Mrs. Last Star; 4, Mrs. Louise Chanepine; 5, Wades in the Water; 6, Julia Wades in the Water; 7, Wolf Tail; 8, Mrs. Wolf Tail; 9, Mrs. Bull Calf; 10, Mrs. Mary Powell. (Photographed by the American Red Cross.)

"Wades in the Water" is a member of the Indian police and an active worker in the Red Cross chapter at Browning, Mont. (American Red Cross.)



Wolf Tail is a full-blooded Blackfoot Indian, member of the Browning, Mont., Red Cross chapter, who is the largest Indian donor to the American Red Cross War Fund.

MISSISSIPPI VALLEY CONFERENCE ON TUBERCULOSIS

The Mississippi Valley Conference on Tuberculosis, which convened in its eighth session at Duluth on September 2-4, 1920, brought together a body of workers whose discussions on the supervision of the tuberculosis, on open air schools, modern health crusades, industrial hygiene, and the organization of tuberculosis clinics dis close the scientific basis of present day tuberculosis work.

NEW YORK STUDIES MALIGNANT DISEASE

The Legislature of the State of New York at its last session appropriated $250,000 to purchase two and one-quarter grams of radium for the use of the people of the State of New York. One gram of radium, valued at $120,000, was recently delivered by the Bureau of Standards at Washington to representatives of the State of New York for the State Institute for the Study of Malignant Diseases at Buffalo for use in cancer research. The radium was given a scientific test by the Bureau of Standards before its delivery.

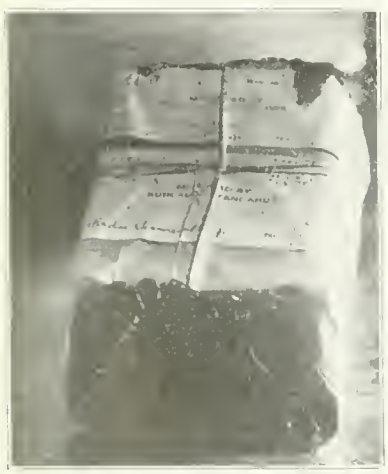
Underwood & Underwood.

The formal transfer of one gram of radium to officials of the State Institute for the Study of Malignant Disease, New York City.

The purchase of radium by the state is the first instance where radium has been acquired by the people for social use. It is the largest amount ever bought at one time, as well as the largest amount ever tested by the Bureau of Standards.

Dr. Harvey R. Gaylord, director of the Institute for the Study of Malignant Diseases, announced that on and after October 15 the Institute would administer radium treatment free of charge. Speaking of the subject in an interview in the *New York Times*, Dr. Gaylord said:

"This first purchase by any state of radium marks an important step in the health activities of the country. For radium is the only therapeutic agent whose cost is beyond even the well-to-do. Of course, radium is in use in the State now, and its value in combatting cancer, especially in its early stages, already has been abundantly demonstrated. There are about seven grams used in New York City, and one or two in the rest of the state. But people must pay for the treatment. After October 15, any doctor may send his patient to us for free treatment by radium. We have enough of the mineral to take care of two million people, and it lasts anywhere from two thousand to thirty-two hundred years. The only limit is our ability to house those who come to Buffalo for treatment. The city will certainly become the radium center of the state."



Underwood & Underwood.

A close up view of the package containing the $120,000 worth of radium recently acquired by the State of New York.

THE AMERICAN PUBLIC HEALTH ASSOCIATION

The spirit and purpose of the health convention at San Francisco September 13-15 are evidence enough of an awakened public consciousness in matters of public welfare, and of the "get together" program of all the specialties to make effectual in physical and racial betterment the improved methods of the laboratory, evaluations that are growing out of analytical study of statistics, and the latest results of sanitary engineering.

The many related topics to public health made up complex and varied symposiums, but general sessions provided means of getting the clear and mutual understanding that makes for intelligent cooperation. The relative functions of official and non-official health agencies were threshed out in general discussion. The technical papers and reports from the Laboratory Section tend still further to standardize analytical procedures. The Health Administration Section offered a highly interesting symposium on narcotic drug control. Special programs were arranged on Child Hygiene.

The industrial hygiene program as arranged by Professor Winslow offered a program of the most definite help to the industrial physician, the symposium on industrial health education being held jointly with the Sociological Section. The topics included: Labor camp sanitation as a basis for education and citizenship; health supervision in industry; industrial health education—a means and an end; and health education in industry, all these discussions being introduced by men authoritative in this field. Other sections presented related subjects, including the results in the home of the workmen of the hygienic principles applied to industry and the hygienic control of hazardous trades.

Special provision was made at this meeting for lectures on personal as well as community hygienic measures, and this work was supplemented with many popular lectures before clubs, school societies, and other organizations.

The officers elected for the coming year are: M. P. Ravenel, M.D., Columbia, Mo., president; T. B. Beatty, M.D., Salt Lake City, state health commissioner of Utah, first vice-president; Louis I. Dublin, M.D., of New York, second vice-president; William C. Hassler, M.D., San Francisco, third vice-president; Roger I. Lee, M.D., Cambridge, Mass., treasurer; A. W. Hedrick, Boston, secretary; Doctors W. S. Rankin, Raleigh, N. C.; C. J. Hastings, Municipal Health Officer of Toronto, and Peter H. Bryce, Ottawa, members of the executive committee.

The following directors were elected: S. J. Crumbine, M.D., Topeka, Kan.; J. A. Ferrell, M.D., of New York; Charles J. Hatfield, M.D., of Philadelphia; M. M. Seymour, M.D., of Regina, Saskatchewan; and Ray Lyman Wilbur, M.D., president of Stanford University. The selection of the next convention city was left to the Executive Committee.

The number of limbs lost in American industry every year is 26,000. This is six times the number of amputations among American soldiers in the year of war. As soon as we have made peace in Europe, can't we do something to prevent the wounding of workmen at home?

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M. OLMSTED, R. N., *Editor*

SAN FRANCISCO MEETING DISCUSSES NURSING

SEVERAL phases of health work of especial interest to nurses formed the subjects of discussion at the sectional meetings of the American Public Health Association in San Francisco. In all efforts to supplant the old conception of public health work as consisting of police power by newer measures whose objective is to carry health practices to the people, the function of the public health nurse becomes more and more important. In addressing the Public Health Administration Section, Charles J. Hastings, M.D., municipal officer of health of Toronto, Ont., emphasized the value of the public health nurse.

Dr. John Dill Robertson's paper, read by Allen J. Hruby, M.D., of Chicago, gave an interesting account of the marshaling of nursing reserves in caring for epidemic diseases. Doctor Robertson's thesis that two months intensive training would enable any woman to render inestimable service in the sick room and afford a nursing contingent for emergent conditions was unquestioned; but, as might have been anticipated, opposition was voiced against any scheme for the training of nurses which would tend to lower the standards of educational requirements or would in any way serve to place upon the persons trained under such régime the same responsibilities as those rightly assumed by nurses regularly trained. Nor could approval be expressed for an official sanction which in the public mind would place these short time students in the same category with nurses regularly graduated from accredited schools. Some of the nurses present vigorously argued that these "practical" nurses, unless controlled by legislation on the subject, will demand fees on a par with nurses who have had three years in a hospital. The training assumed in a registered nurse is the technical skill that accrues from oft recurring tasks, the ready common knowledge long since acquired and repeatedly used, and the stability which results from discipline over a long period of time. The broadened scope of the nurse in public health fields calls for higher requirements of training, and any measure which proposes to make up the present shortage by lowering the standards simply begs the question.

The health center plans fostered by the American Red Cross was the subject of the discourse by E. A. Peterson, M.D., director of the health service, Washington, D. C., before the civilian relief section of the American Red Cross. He challenged the Red Cross, with its fourteen million members, to bring to communities all the health knowledge now in the hands of experts and teach the public how to use this knowledge. The health center program, he said, was conceived as the next great step in health work, again bringing to the fore the important function of the nurse for civilian relief.

STUDIES IN NUTRITION

WE PRESENT on another page of this issue a discussion by Miss Jane Teare Dahlman of the fundamental factors in nutrition, a knowledge of which must be considered an essential part of the nurse's training. In her capacity of director of the School of Public Health of the University of Louisville, and of the Bureau of Public Health Education of the Kentucky State Board of Health, Miss Dahlman speaks authoritatively, while her first hand knowledge of nutrition as affecting the public health gives her the proper perspective as to its importance.

The tendency on the part of the popular mind to associate the idea of malnutrition with disease is probably due to recent studies of certain diseases of serious import to the community, which emphasize the fact that their primary cause is to be found in dietetic sources. Rickets, beriberi, pellagra, and scurvy are conceded to be due to specific deficiencies of diet, and it may well be assumed that much of the general ill health attributable to such causes has been often misunderstood and wrongly treated. A striking point in this connection is the ease with which these inefficient diets can be converted into efficient ones, once the facts are arrived at.

But in ascertaining the facts in regard to the dietary, a study of the national supply of foods or even of family budgets gives only partial information. Malnutrition finds its source in ignorant and ill judged feeding, or badly treated and ill chosen foods, as often as it is traceable to poverty. Nor is nutrition to be regarded too exclusively from the standpoint of energy supply without due regard to the accessory substances—vitamines—at least two of which must be present in any dietary providing proper nutrition. On food lacking these, young animals fail to grow and even adult animals sooner or later go to the ground, says Hopkins[1] in reporting some discriminating experiments on dietary management. The question is one of national importance and is especially urgent in connection with the proper feeding of the young. The child who is the victim of malnutrition is smaller in growth, more or less retarded in intelligence, and is much more vulnerable to disease than the normal child.

The whole question of the dietary rightly commands the public interest and calls for special attention from public health nurses. We are yet at the bare beginning of the study. S. P. M.

1. Halliburton, W. D.: Physiology and Natural Needs. (Chapter on Vitamines by F. Gowland Hopkins) E. P. Dutton & Co., New York, 1920, p. 34.

SCIENTIFIC CONSIDERATIONS IN NUTRITION*

By JANE TEARE DAHLMAN, R.N., Director, School of Public Health, University of Louisville, and of the Bureau of Public Health Education, State Board of Health, Louisville, Ky.

NUTRITION—what does it mean? "Nutrition is the sum of the processes concerned in the growth, maintenance, and repair of the living body as a whole or of its constituent organs," is the definition of Dr. Graham Lusk.

Could anything more vitally concern doctors and nurses, the guardians of the health of men, women, and children? Only within a comparatively few years, though, has this important matter been given scientific consideration. It was recognized that folks wanted to eat, that they must eat to live, that some, in fact, live to eat. But just what they did eat was of comparatively little concern so long as the food was obtainable and, most important of all, palatable.

The Appetite No Guide

There used to be, and there still is, a popular idea prevalent that "appetite is a good guide for the stomach." When that adage was coined, doubtless it was true; but that was in ages when men and women lived natural lives. It does not apply, however, to people of this day and generation because we are not living natural lives, nor have our forbears for generations back lived natural lives. Civilization has brought to us what we call advantages—many of them—but these advantages bring with them a demand, an insistent demand, for numerous changes and adaptations in our artificial mode of living. It is a long jump from the naked or skin-clad, barefoot family living in a brush shack or a skin tent, to the modernly attired family living in the artificially heated house of today. It is a long jump, too, from the roots, herbs, and cracked corn of that earlier diet to what we now serve on our tables or to which we serve ourselves at cafeterias.

To all of these changes in the manner of living our physical bodies have responded in various ways. It is not so long since America was known to the English as the "land of pie and indigestion," while we in America thought of England as the "land of roast beef, plum pudding, and gout." Modern physicians, however, did begin to watch more carefully the diet of their patients. Perhaps the one case that gave most to scientific thought in nutrition was that of Alexis St. Martin, the Canadian whose gunshot side afforded an opportunity for Doctor Beaumont's observation of the digestion of food. Following him, there is a direct line of sincerely interested scientific workers seeking to solve the mysteries of the processes concerned in "the growth, maintenance and repair of the living body as a whole and of its constituent organs." Often, at great personal sacrifice, these scientists have earnestly sought to discover these secrets of life for the masses of people unable themselves, for various reasons, to undertake such studies—outlining, suggesting, and recommending the kinds and amounts of food necessary for the continuation of their bodily processes.

Just as the nutritional expert needs to know physiology and anatomy, so does the health worker need to know nutrition. Nurses and doctors both have said to me: "Oh, I don't know anything about calories. Nutrition is too much for me! Let the dietitians attend to that."

I deny absolutely that anything is too difficult for us if it calls to us as professional health workers. The nutritional needs of the people do call to us professionally and it is our duty to so prepare ourselves that we can answer these calls intelligently and effectually.

What a Calorie Stands For

To learn that a calorie is not such an awesome thing after all, but merely a standard of measure used to designate the heat or energy value of a certain definite quantity of food; that each of the foods has different caloric values; that under various circumstances the human body requires varying numbers of calories; that calories, or definite amounts of foods generating heat and energy, are not all that the living body requires but that protein, water, bulk, vitamines, and mineral salts are all necessary to life; and that at different ages and under diverse living conditions, the required amounts and compositions of the diet vary; are all matters of vital importance.

Here are two things we must know: (1) The nutritive requirement of the body—the actual amount and the kinds of food necessary to promote bodily growth, maintenance, and repair for all ages and conditions of the people we serve; and (2) the nutritive properties of foods—the amounts and kinds of nourishment contained in each food which is available and can be digested and assimilated by the man, woman, or child. It is now possible to measure this requirement with surprising accuracy.

An adequate supply of fuel is necessary to keep any machine going. The fuel for the human body is food. The calorie is taken as the unit of measurement of fuel or heat contained in food. The calorie is no more abstract and difficult to determine than the inch in measuring a yard or the degree in measuring the temperature of the atmosphere. A calorie is just another unit of measurement with which to become familiar. The definition usually given is this: A calorie equals the amount of heat required to raise one pound of water to 4° Fahrenheit. One pound of water equals about one pint. Fats yield the largest amount of heat, therefore they are richest in calories. Carbohydrate foods yield the next largest amount of heat. Carbohydrates are composed of starches and sugars together with considerable cellulose or bulky fiber, in most instances, and, rightfully, form the major part of man's diet. The protein foods also yield some heat and energy, but unless taken in excess, protein foods, for the most part, are utilized for growth and repair of tissue. In fact, protein foods are too expensive to be used as fuel foods—expensive to the pocket book but, most important of all, expensive to the bodily mechanism, for, in excess, they throw so much extra work on the digestive organs, the kidneys, and the heart. All meats should be taken in much greater moderation than is commonly practised in the United States. Hard muscular work does not increase the requirement for protein, but a large amount of muscular work does make an insistent demand for more energy-producing food—more carbohydrate, starches, and sugar. Mental work makes no demand for extra protein or for extra energy-producing foods.

The human body, like other machines, not only requires

*Read before the Annual Conference of County and City Health Officers and the Public Health Nurses of Kentucky, May 15, 1920, Louisville, Ky.

fuel, but also water to keep it in running order. How far would a locomotive carry you without water in its boiler? The human machine requires water, not only to "make it go" like the steam engine, but also to assist in its actual growth and repair, for, unlike man-made machines, it is able to repair and renew its own parts. As 66⅔ per cent of the entire body is composed of water, large quantities of water must be taken in food and beverage in order to supply the constant bodily demand.

What Minerals Are Essential

Several mineral substances are essential for the growth and maintenance of the body. The three requiring our special attention are phosphorus, iron, and calcium. The necessary sulphur, potassium, chlorin, fluorin, magnesium, manganese, sodium, silicon, and iodin will usually be supplied if the requirements are met for phosphorus, iron and calcium. Phosphorus is as important to body growth and maintenance as protein. It is as widely distributed as protein, being found in every active cell of the body. Brain and nerve tissue, blood and lymph, are rich in their phosphorus content. With calcium, phosphorus helps to give rigidity to the bones. The foods from which this essential element is obtained are egg yolk, milk, vegetables, fruits, grains, and fish. Iron is also found in the structure of all the active cells of the body. Every little red blood corpuscle contains iron, that element essential for carrying the necessary oxygen to the body cells. Only a small total amount of iron is found in the body, almost no reserve being kept in supply except in very young babies. At birth babies bring with them a special supply to carry them over the first few months of adjustment to their new environment. Then, throughout later life the amount of iron excreted about equals the amount taken in. The important thing for us to remember is that each individual needs a constant supply; otherwise anemia is apt to result. Most of the leading authorities consider that the medicinal sources of iron are not so available to the human system as those compounded with our foodstuffs by nature. The iron found in the pharmacopeia is quite unlike that in our foodstuffs. Neither does beef juice longer hold its former high place of esteem in the treatment of anemia. The best, most available sources of iron supply are found in egg yolk, spinach, dandelion, celery, cabbage, string beans, carrots. Potatoes and other vegetables and fruits also contain available iron.

Calcium in combination with phosphorus makes the bones and teeth strong and firm. The ability of the blood to coagulate depends upon the amount of calcium salts it contains and the normal behavior of the muscles and nerves is controlled in large measure by the calcium content of the solution in which they are bathed. Calcium is constantly being metabolized. A measurable amount which is excreted daily must be replaced. If the replacement is not made, if sufficient calcium is not ingested to supply the demands of the body, the bones and teeth will be drawn upon to make up the depletion. This effect may be noticed more quickly in the growing child or animal or in the pregnant mother. The sources of supply of calcium are milk—the richest of all foods in this salt—the leafy vegetables, such as spinach and cabbage; also, cauliflower, celery, string beans, carrots, onions, potatoes, fruits, bread, and whole grains.

The Vitamine Requirement

The vitamines are food accessories essential for the growth and maintenance of the body about which little definite knowledge is as yet available, except that the diet is inadequate without them. Vitamine requirement is now a well established fact. Pending more complete and conclusive research by the British, French, and American experts now studying this vital problem, the part for us to play is to see to it that our families recognize the value and necessity of eating such foods as will supply these necessary substances for their bodily needs. Vitamines are found in milk, fresh fruit and vegetables, particularly in the leafy vegetables. Fresh meats contain small quantities of vitamine substances. Lemon juice is said to be particularly rich in them and freshly germinated beans, peas, and grains also. Perhaps we may learn to include in our diet several of the excellent Chinese dishes made with germinating grains or legumes as a basis. A well balanced ration, a mixed diet—especially recognizing the value of milk, fresh vegetables, and fruit—is the one best guide to the proper nourishment of the body.

Children are, of course, the paramount consideration in all our health work. They are just beginning life and it is our privilege, and duty as well, to so guide the selection of their food—the blocks with which is builded the body as a whole—so to guide the diet of the prenatal mother, the infant, the pre-school child, the school child—that when he attains adult life he will be the rich possessor of a sound body equipped with a sound mind.

Education and the Dietary

It is our duty to teach them to respect food. Under our guidance children should learn to use food to its best advantage for it is the source of their mental and physical force. During their early years they may learn that the satisfaction of the palate should not be the chief aim of life and that our foods nourish us whether we like them or not. Food that is distasteful—if retained—is as completely, though perhaps more slowly, digested as that which is enjoyed. Just let the food slip by the palate and old Mother Nature will do the rest. Oftentimes foods to which children show an aversion may be so disguised as to meet their approval; for instance, milk may be given as soup, cocoa, pudding, and frozen desserts. Cereals may be given in various forms of dessert, with cooked fruits, and as soups.

"With milk freely supplied and an average of one egg a day, there is no call for the introduction of meat into the diet until after a child is seven years old," according to Mary Swartz Rose. Children require protein food, but meat is not the source from which to supply this requirement, for in the intestines of the child of seven years and younger the putrefaction of meat takes place very rapidly. Adult dogs and cats will thrive on a meat diet on which puppies and kittens often develop convulsions. The same condition is true of children. The one best source of protein food for children is milk. Every child from one to fifteen years will be healthier, happier, hardier, and eventually a more effective adult if given at least one quart of milk each day. This may be taken as milk or cooked in the food in various ways.

The child of fifteen years should consume more food than an adult of the same size. He needs more food for his body is growing rapidly and his needs for the necessary material with which to build new tissues are great. Then, too, the youngsters of this age and younger are usually very active, and muscular activity calls for more energy producing food.

All foods that are good for childhood are also good for adult life. The converse is not true, however, for the stomach of a child should no more be called upon to digest the ordinary man's dinner than his muscles to lift

or carry the man's burden. With almost no exception, it will be found it is much harder to train the adults in the family, the father and mother, and particularly the grandfather and grandmother, in health habits than it is to train the child himself. But it can be done.

In infant welfare clinics our two professions are doing much to promote a universally sane practice in the feeding of babies. After they graduate from the baby clinics, though, there is still great need for careful scientific consideration of the diet. When a calf is weaned, the most successful farmer does not give the young thing the same diet as its mother. He realizes that the digestive apparatus of that calf is not equal to the task of digesting the same food as its mother. Why, then, expect a baby to thrive on nibbles from the plate of Daddy, Grandmother, and the grown-up children?

To correct many of the mistakes made in the diet of children of school age, nutritional clinics have been established in many cities with astonishingly happy results. Usually, the children found to be 10 per cent underweight are the ones privileged to enter these nutrition clinics; 7 per cent underweight has more recently been found the safer condition for entrance.

Nutrition Clinic an Aid

In order to establish a successful nutrition clinic, the nurse finds the first requisite is a doctor interested in keeping children well and full of "pep," a doctor interested not only in children but also in preventive medicine. The next requisite is a set of scales and a measuring tape or rule firmly fixed in a permanent place and easily accessible. Then come weight charts to be hung on the wall, booklet records for the children to keep themselves, colored stars, and a few other accessories; also, provision for the mid-morning and mid-afternoon lunch; blankets with cots or mattresses for the mid-morning and mid-afternoon nap or rest period are necessary in an all day school.

Parents soon become interested and will often ask numerous questions after the class is over. "Why should she and her Johnny always have to sit at the foot of the class?" is often the inquiry of the fond, yet unwise, mother. When told that if Johnny would stop drinking coffee and take his afternoon nap regularly he might gain the necessary weight to bring them both up to the head of the class, Johnny usually does stop drinking coffee and does take his afternoon nap.

The competition for gaining weight is always a great help in these classes and a very happy help as a rule. The Child Health Organization, 156 Fifth Avenue, New York City, has some valuable literature on this subject and will glady advise with any of you in organizing and suggesting these classes. A ready, easily understood, comprehensive guide on the subject of nutrition, for daily use, may be found in Rose's "Feeding the Family." I earnestly urge that every nurse make careful inquiry into the diet of all of her families, then consult carefully her references on the subject, seeking some means through the bodily intake of foods of helping to prevent much unnecessary suffering. Every worker who is not a physician should always consult the chief in cases of illness.

The successful Public Health Nurse is the counselor in health of every family in her district. Her aim in life is to cooperate with her chief, the Health Officer, or the doctors with whom she serves in reducing the prevalence and amount of illness and in decreasing the death rate. A knowledge of nutrition will materially aid her as well as the doctor in this laudable undertaking.

THE CHILD WHO DWELLS AT THE HEAD OF THE HOLLOW

By JOHN F SMITH, Professor of Social Science, Berea College Academy, Berea, Ky.

THIS is written as a plea for more adequate medical care for the unreached people of the Southland. By the "unreached" I mean those who live in remote corners, at the back of old fields, far down in the swamps, high up on hillsides, at other secluded spots which the busy workaday world is inclined to pass by. These are the people, both white and colored, who do not have a sufficient amount of nourishing food, do not possess comfortable houses; they have few of the necessities and fewer of the amenities of life. They are not touched in a very helpful way by our public schools, are rather generally passed by by our colleges and universities for they are too poor to pay the price. They must be content, or at least half-content, with a system of very dogmatic religion. They are not trained in any effective manner to do their share of the world's work with credit to themselves and their country. They dwell for the most part in houses poorly fitted for human habitation. These houses are not all far away. Many are located on the margins of prosperous neighborhoods, and most of them are close enough to some prosperous neighborhood to be seen on any clear day from lofty hilltops.

A very large number,—and those I am most interested in—dwell in remote regions of the open country far up in lonesome valleys or back in the deep forests of the lowlands where the smell of growing things is ever fresh and where the dew lingers long on leaf, the grassblade, and the petals of wild flowers. They dwell where the groundhog whistles to his mate by day, basks leisurely in the sunshine, and scuttles into his hole at the approach of the traveler. Near their homes the gray and the red squirrels chase one another among the tree tops, cut the wild nuts, and destroy the nests of songbirds. Great hawks circle over the forests and scream by day, and the hoot owl and the barn owl mingle their loud screams at night time. It is away out and up across field and pasture and timber lands where boulevards dwindle down to squirrel trails and fade away at the roots of giant trees.

Out in these lonesome places they get sick, suffer, and often die. They have not had opportunity to learn the laws of health. No one has ever been there to teach them. Those who have gone among them have usually gone as missionaries with little knowledge of their real needs and their traditions. A Bible and a song book have usually been taken—excellent things in themselves—but these have not cured pellagra, have not prevented babies from having enteritis, whooping cough, measles, diphtheria, worms; nor have they taught people how to avoid typhoid and tuberculosis, dysentery and pneumonia. Some progress has been made towards preparing them for

An ancient church in which is still preached sermons on "total depravity," but thinks recreation ungodly.

Is it to be wondered at that boys quit school at the fifth grade when even the new schoolhouses lack shade and a place to play?

the Kingdom of Heaven but little has been made towards preparing them to become healthy mothers and fathers, to take proper care of their babies, to grow into their full stature, and to do their share of work here in this Kingdom of the World.

There are more of these unreached people than our learned educators and other conventionally minded people are willing to admit. They may be numbered not only by hundreds and thousands but by millions, actual millions of men, women, and children from whom the ministering hand has been too long withheld. If anyone doubts that the unreached exist in so large numbers let him but "go forth under the open sky" and look about him with sympathethic interest and penetrating eye. He will doubtless make some surprising discoveries.

I am deeply interested in these folk of the open fields for two particular reasons: First, they are my people, and I want to see the same medical care, the same opportunities for practical education, for an effective, soul-inspiring religion, and the same chance for full development brought to them as are brought to the most favored in the land, and, second, because the blood and will and fiber that have made more than half of our successful leaders in education, religion, and business are to be found in great abundance among these undeveloped sons and daughters of our rural families. When we examine a list of our leaders in thought and progress we discover early that a very large percentage were born and grew up in fields and pasture lands where wild flowers bloom and sharp eyes peer from treetops and fish-folks play in the streams. Here are a few of our leaders who were born far enough away from the smoke of cities to see the sun rise every morning in a clear sky: Elbert H. Gary, John D. Archbold, Frank Vanderlip, William Dean Howells, Champ Clark, Thomas A. Edison, George M. Reynolds, David Lloyd George, John J. Pershing, Jane Addams, Maud Ballington Booth, Russell Conwell Ben B. Lindsey, John Mitchell, Robert E. Peary, Henry Ford, James B. Duke, John H. Patterson, Joel Chandler Harris, Frank Woolworth, John N. Willys, Edward C. Simmons, John G. Shedd, Darwin P. Kingsley, Percy H. Johnson, Thomas Nelson Page, Dan Willard, and a host of others. And there are scores and hundreds of lads born out among ferns and dogwood blossoms close to the haunts of the wood thrush and the oven bird who under favorable circumstances would grow as strong and great as most of the men whose names are mentioned. They are born amid all the advantages and joys of the open country side and inherit all the disadvantages and depressing hardships that isolation frequently brings.

It must be borne in mind that not all the children born in remote regions belong to the unreached class. The country has its wealthy people as well as the city, and also its slums. Many of the dwellers in the open country have the means to bring the best of everything to their doors, but others, whose number is millions, do not have such means. The first group can purchase the benefits of the best medical skill and hospital service, the latter cannot. It is the latter class from whom I plead.

The "old oaken bucket" shown is a sorghum pail, and the sentiment attached to the picturesque does not keep the well from being filled with "bess bugs" and typhoid germs. What of the people whose sole water supply is a well like this?

Are these unreached people in need of better medical attention?

For a whole life time I have seen children born in remote places grow and suffer and develop into mere fractions of men and women because a ministering hand was not held out to them in hours of need. The hand was not present and the means were not within reach to bring it near. I have seen little ones of promise overtaken by physical ailments that cut short their lives and left only scars and memories in the hearts of their parents. These ailments could have been prevented had the skill and the knowledge been near to minister to the little sufferers. The game of life and death was played in the absence of a trained hand, and death won in the lottery. Often have I seen a white casket, or a homemade coffin, a procession of farm wagons, and heard low

sobs of inexpressible grief when the life light of a wee one had been snuffed out because the forces were not at hand to protect the little one from the relentless foes of childhood. For generations such things have been going on in the open country of the Southland, and they will continue until a public conscience is awakened in every neighborhood that will demand a skilled medical officer and a highly trained public health nurse within reach of every home. And this matter of saving child life must be taken upon a sound business basis. Church boards and missionary societies have long looked upon the unreached poor as objects of missionary effort and charity. A few unskilled people have been "sent" out with some enthusiasm, but often with little common sense, who have pottered around in remote corners, talking religion here, holding prayer-meetings there, preaching a creed at other places, doing the only thing they know how to do to help the people, and doing it all for charity's sake and from the missionary standpoint. The majority of these "workers' have done nothing to teach mothers how to care for babies, or to instruct fathers how to provide suitable recreation for their sons, or to offer wholesome, funmaking entertainment to young men and women, or to convince people that typhoid and tuberculosis can be prevented. They may have saved some souls, but certainly they have saved very few lives. They probably did the best they could, certainly all they knew how to do. But the very things that the unreached people need most cannot be learned in a theological school or a missionary training school of the average sort. The only place to learn this first aid for first service is in a hospital or a medical training school. Sunday schools don't bring much relief to children who are underfed and infected with hookworm and other diseases. When Jesus found a sick man He first healed him and then taught him a great lesson of love and life. He did not visit with him and commiserate wtih him in his suffering; He made him well so his mind could be a suitable receptacle for a great idea.

The Pious Attitude Toward Death

One of the first things which the unreached people need is a changed point of view regarding the cause of death. Too long has the responsibility for the deaths of children been laid by tens of thousands of pious country folk at the feet of Providence. In their helplessness the very poor have sought a cause for all their woes, and they have learned to think—have often been taught to think—that the Lord goes about over the earth picking out choice human flowers whom he takes away to add beauty and sweetness to the halls of paradise. I do not doubt that these departed child spirits do add grace and exquisiteness to the bowers of bliss, but it would be far more practicable and infinitely more humane and Christlike for every neighborhood in the land to take the necessary steps to have these child spirits remain here on earth for a few scores of years to add grace, beauty, and economic values to our fields and hearthstones. Our schools, churches, political institutions, and homes need their strength, presence, and wisdom much more than paradise needs their spirits. And it is not too cruel to say, for someone must say it, and say it till it arouses ire and opens pocketbooks, that one of the chief reasons why so many choice spirits go to dwell in paradise rather than on earth in the homes of men is the fact that tens of thousands of substantial farmer folk have not yet reached a point where they consider it a religious duty to open up their purses to pay the salaries of the nurses and public health officers who could save their children. It is a poor kind of religion that shoulders upon Providence a responsibility that rightly belongs to human beings; and it is a poorer kind of service that sends people out to minister to the unreached poor as an act of charity rather than on a sound business basis. The old way may save the lives of the missionary societies but it certainly does not save the lives of the people.

But there are hundreds of thousands who are too poor to pay. These must be reached at public expense, both for their own sakes and for the sake of the state that claims them. The state is certainly under as much obligation to take care of the bodies of the living poor as it is to bury their bodies when they die. It would be a crime against decency and civilization to allow the bodies of the dead poor to lie and decay in the sight of the living; is it not also a crime to allow the bodies of the living to walk about among the strong and healthy maimed, diseased, neglected, infecting the well with diseases that will also carry them away?

The Unreached Among the Prosperous

What evidence do we have that there are unreached children even in prosperous neighborhoods?

In Virginia where the health forces are among the most efficient in the Southland, recent examinations were made of school children in a number of counties and the following figures were made public:

In one county 3,489 children were examined, 20.9 per cent had defective eyesight, and 29.8 per cent had defective teeth. Teachers in another county examined 502 children, finding defective eyes in 29 per cent, and defective teeth in 61 per cent. Altogether 22,418 children were examined, 22.3 per cent of whom had defective vision, and 46 per cent had defective teeth. Virginia children have eyes and teeth that are no better and no worse than those of other southern states. We do not know what defects do exist among the country children; only a few of us have ever taken the trouble to look into the matter, and none of us has made very thorough investigations.

But defects enough exist. I have seen children in the homes of the poor with teeth rotting out, with eyes grown raw with trachoma, with feet and legs covered with "toe itch" and "dew poison." I have seen others with eyes threatened with poison ivy, some with great gashes in their feet bandaged with very dirty rags, many seriously afflicted, and only the most primitive kinds of treatment employed. In tens of thousands of poor homes it is not customary to consult a dentist until teeth are too far gone to be saved. In these same homes an oculist is never consulted. "Specs" are sometimes bought by the old folks, but are looked upon as a sort of disgrace for the young. These "specs" are usually purchased from itinerant eye doctors, who are usually about as well informed on eye troubles as an infant is on the nebular hypothesis. Salves and eye-washes are employed to "cure" trachoma; bitters are taken for colds, back-aches, and countless other troubles; kerosene is given for the croup; hot onion poultices are applied to the soles of feet to draw out the fever; linn ooze and sweet milk are applied for a "hurtin' in the eye," and numerous other remedies are resorted to by those who were brought up under the care of ancient grannies and their more ancient medical science. In thousands of homes flies are allowed to swarm by day and by night, and, when a child becomes sick of enteritis, catnip tea and turpentine are given to cure it. In other thousands of homes a throat trouble in a child causes little concern, and a doctor is often called just in time to see a baby die of diphtheria. There are many mothers yet living who take their babies to a neighbor's house where children have whooping cough to "let um ketch it

an' git over it while they are still little," not dreaming that whooping cough is just about as fatal these days as diphtheria. In these same homes almost no time is devoted to prenatal care of mothers. The result is that mortality among mothers at childbirth remains almost the same as it was a quarter of a century ago. If anyone is inclined to doubt that such medieval remedies are still resorted to, and many others much more hopelessly bizarre that might be mentioned, he has only to "go forth under the open sky" and list to ancient grannies and their teaching.

Why Is an Unreached Family?

Why do these unreached families exist?

In our land of wealth and democratic institutions it is clear that such things should not be; but they are, and they exist for several reasons, some of which follow:

In most rural neighborhoods there are no hospitals. We have not yet reached the stage in our civilization where we will provide adequate hospital service for all our poor at public expense. Virginia has three public hospitals for tuberculous patients; West Virginia has four; North Carolina, three; South Carolina, four; Alabama, two; Tennessee, three; Kentucky, three. Each one of these states will some day have a free public hospital in every county, but that day is a long way off.

Where hospitals do exist, many people are afraid of them. They fear to go there because, according to their own testimony, something may be done to them "that may hurt." Their fathers and friends have always died fairly well without a hospital, so some of them prefer to die at home rather than take chances on getting well at a hospital. One of the problems of our health departments is to convince the poor and timid that hospitals are institutions of service rather than of torture.

Another great barrier is the hospital fee. Many a person dies at home because hospital fees are prohibitive to the very poor. Men of wealth can render no greater service to humanity than by constructing hospitals at strategic places in the remote open country and endowing them for the use of the poor who must die without such service unless men of wealth—or the state—take this all important step.

As has been said, thousands of the unreached poor dwell far away from the county seats, where live the majority of doctors and nurses. To reach them, the

A home at the head of the hollow. Homes like this shelter thousands of hopeful, honest folk, far removed from the trained service of a nurse or doctor. Home remedies are employed and desperate chances taken with illness.

Wreckage of a primitive corn mill. Note the home-made turbine of poplar, the sluice, and the stack tower that supports the sluice. No trained physician is within twenty-five miles of this spot, and no nurse ever visited the neighborhood.

In remote places like this the only highway is a trail. Here the roar of the rushing stream, the scream of the hawk by day and the owl by night mingle with the moans of the suffering child.

A main road between the railroad and twenty thousand people. Given a very dark night, a desperately sick child twenty miles away, a midnight call for a doctor, what would be the result? The mule in this picture has fallen from exhaustion, and the farmer still has twenty miles between him and the market.

doctor or the nurse must in most instances travel over roads that are poor at their best and almost impossible at their worst. Not all distress calls are answered. Doctors and nurses are but human and became exhausted with constant service. The majority go when a call comes, whether the distance be great or small; but distance and bad roads militate against the sufferer and turn the tables in favor of death.

In homes like this the neediest often dwell. Cleanliness is next to impossible in such houses, and a child from such a home is often a source of danger to other children about it.

In most isolated neighborhoods there is no nurse at the disposal of the people. The number of country nurses is increasing, but tens of thousands of people suffer and died before the ministering hand of a nurse can reach them. A few weeks ago Virginia reported 143 public health nurses, West Virginia 70, North Carolina 15, South Carolina 75, Alabama 60, and Kentucky 80. These same states claimed that a total of about one thousand three hundred nurses are needed at once. This claim is modest enough. If this number were multiplied by ten it would more nearly represent the number needed to care for all the sick and the well in the outlying districts.

In numerous counties the public health forces under present conditions are hopelessly inefficient. However sincere and capable the members of county boards may be, they can never render the maximum service until a highly trained public health officer whose salary does not depend on fees is placed in every county, and nurses enough are put under his direction to reach every home in his territory.

Much suffering may be traced to the untrained midwife, who is the sole arbiter between life and death at the birth of children in thousands of poor homes. Trained medical attendants are not always inclined to give full credit to the midwife for the good she does. I have often heard her work spoken of lightly but have rarely heard it praised. It must be remembered that she renders an invaluable service to mothers who are too poor to afford the services of a trained physician or a nurse, but it must also be remembered that she is often responsible for serious tragedies in both mother and child. It may be safely said that she always does the best she knows,—and she often knows more than she gets credit for,—but in emergency cases she is helpless. In such cases only the skilled hand can prevent disaster.

Isolation is partly responsible for the unreached family. The great currents of progressive thought that influence the masses to move forward dwindle down into feeble mental rills before the marginal people are reached. So are the country schools. These are often taught by poorly trained teachers,—young women mostly who have a smattering of a few subjects but who, at least in some states, are rarely trained to do the most important thing first. Impoverished religious services contribute a large share to the untoward conditions. The ministers are generally untrained, the singing is prone to magnify the sadness of death and the imaginary glories of heaven; the sermons are usually depressing and burdened with dogmatic creeds rather than with measures for relieving and preventing physical suffering.

Still another cause lies in the fact that thousands of the poor folk are born with defective physical and spiritual foundations to build on. Malnutrition, improper care during infancy, nicotine poison, morbid thoughts, and other blighting agencies have done their deadly work for generations, leaving only fractions of men and women to pass on their weaknesses to other human fractions in the future.

The Menace of the Unreached Family

Without intending it at all the unreached family constitutes a menace to the health, morals and progress of the neighborhood. And the danger goes beyond the bounds of the neighborhood where the family dwells. When people have little knowledge of the common things of life, the great principles of Americanism mean little to them; when they are poor, they add to the poverty of the Nation; when they have only an antiquated form of religious

On this road, the main outlet for two entire counties for a century, a four-mule team is necessary to pull the mail wagon. No doctor or nurse could make time over this highway during the winter months.

One may readily understand why the principle of sanitation and health are not taught to the isolated poor when a schoolhouse like this is the only kind available.

service, they are liable to develop into fanatics, or they will become so austere in character that they repel all young folk from the church. When women or men are unlettered, they become a potential factor for danger at the polls; when one woman in a remote neighborhood is immoral, she will contaminate many homes; when one child becomes ill with a contagious disease, every child about it is in danger.

I have recently made some studies of delinquency among people in remote neighborhoods and have found rather discouraging things. In one neighborhood more than thirty women and girls were known to be immoral, and more than a dozen young girls gave birth to illegitimate children in a few years—a condition that may be traced not so much to depravity as to a lack of proper opportunities for wholesome recreation. Almost similar conditions were found in other neighborhoods. This, however, is not to be taken as an index to the moral status of all remote neighborhoods.

The menace of the unreached family in its many forms is perennial. Nobody's child can be entirely safe until everybody's child is adequately cared for.

A Reconstruction Program

In removing the danger that exists in the home of the unreached family certain steps seem advisable.

(1) Demonstration in care of children and mothers and in means of preventing diseases must be held in the remote neighborhoods. Talk doesn't get the people very far. Things must be done that will be remembered and talked about when little groups get together. The work of the Rockefeller Sanitary Commission during its campaign against hookworm in the Southland was the best practical demonstration we have ever had on a large scale

(2) The whole truth must be told at conferences. There is often a tendency to report great progress and leave unsaid the things concerning the imperfections of health programs. Nobody is reaching everybody. No program is likely to function in the fullest sense. We must recognize that there are unreached people, and that it is our responsibility to take care of them, and we must acknowledge that they are found in our own neighborhood.

(3) Some wise person who knows the difference between condensed milk and "shawnee" must invent a menu for country children made up of the things the poorest mother can obtain. She has only certain things at hand to eat and to feed to her children. She has fat salt pork, beans in season, wild "sallet," dry peas, coffee, sorghum, fruit, garden vegetables in summer, corn bread, and, usually, milk. Out of what she has someone must work out a menu that will be good for the growing child. There is no need of talking to her about animo-acids, anti-scorbutic vitamines, fat-soluble A and water-soluble B. It must be in terms of beans, gravy, milk, bread, wild "sallet," peas, etc. What she has is about all she can get,—and it will be a wise nurse who discovers the combination that will satisfy the mother and the stomach and muscles of the growing child.

(4) It will be necessary for courses in health and sanitation to be required of all students in all our educational institutions,—especially in all public and normal schools. Any normal school that does not offer suitable courses in health work and in the prevention of common diseases deserves to be ostracized by the public. Any head of any normal school who does not put the major emphasis on child welfare rather than on theoretical pedagogy deserves reconstructing, to say the least.

(5) Health institutes must be held for health workers and for the public. On Chautauqua platforms speakers are inclined to talk about everything else except enteritis, pellagra, hookworm, and pasteurizing milk. The public ought to have more lectures on the prevention of diseases. And these institutes must be carried into remote neighborhoods where the greater need lies.

Lecturers trained especially for country service ought to be available. Those who succeed best with the unreached poor in the open country must know the difference between a barn owl and a whippoorwill. And no mistake will be made if those who can see from the level of the cabin door be brought before our training schools for nurses in the cities, that the call of the open country may be duly presented by those who know from experience rather than through hurriedly made surveys.

(6) Programs made especially for the people of the open country must be employed. If a program succeeds in the city there is no conclusive evidence that it will succeed in the sparsely settled country at the head of the creek. Human nature is very much the same everywhere, but the line of approach must differ in different places. One of the things that will for a time militate against the success of the ultra-rural program is the fact that most of the workers who have gone into the remote neighborhoods have gone on the missionary basis. People must be convinced that health workers do not come to preach conventional sermons and hand out second-hand clothes. "It must be a fifty-fifty proposition," said a nurse to me recently. Country people have as much to give as they have to learn,—and all who work in rural neighborhoods should recognize this fact.

(7) All nurses and health officials who plan to go into the outlying fields should have their attention called to the larger spiritual aspects of the work they are to do. It is not a mere matter of applying bandages, using antiseptic washes, bathing babies, pasteurizing milk; it is ministering to people in a way that will enable them to have life and have it more abundantly. The worker in the head of the long, lonesome valley must be much more resourceful than the worker in the city. Human souls often need healing as well as human bodies. The larger things in the spiritual life need emphasis quite as much as the simple things connected with sleep, food, and personal cleanliness.

"He gives nothing but worthless gold
Who gives from a sense of duty;
But he who gives but a slender mite,
And gives to that which is out of sight,
That thread of the all-sustaining beauty
Which runs through all and doth all unite,—
The hand cannot clasp the whole of his alms,
The heart outstretches its eager palms,
For a god goes with it and makes it store
To the soul that was starving in darkness before."

THE AMERICAN JOURNAL OF NURSING

The July issue of the *American Journal of Nursing* presents the proceedings of the twenty-second convention of the American Nurses' Association, held at Atlanta, Ga., April 12-17, 1920. Several papers printed in this issue give in detail several important phases of the work of the Association, among which are:

"United States Public Health Nursing Service," by Lucy Minnegerode; "Aspects of Private Duty Nursing in the South," by Frances J. Patton; "The Future Outlook of the Private Duty Nurse," by Winifred Boston; "Peace Time Program for Mental Hygiene," by William Barclay Terhune; and "Accredited Schools of Nursing," by Elizabeth C. Burgess.

MICHIGAN TRAINING SCHOOLS FOR NURSES SECURE RECRUITS

By MISS MAUD McCLASKIE, Instructor of Nurses, Farrand Training School for Nurses, Harper Hospital, Detroit, Mich.

THERE are actively engaged in the pursuit of the nursing profession 1,731 graduate nurses in the state of Michigan. Of these, 1,351 are Red Cross nurses, 40 are full time Red Cross county nurses, and 30 are Red Cross instructors. The total enrollment of student nurses in accredited training schools is 1,710. This makes a total of 3,400 nurses to furnish service for a population of more than three million people. In addition to this, conditions are modified by the consideration that nursing service is largely concentrated in and about institutions, and largely in cities. The Michigan Hospital Association early last March recognized the necessity for recruiting one thousand student nurses for Michigan training schools. This was undertaken, not alone because of the necessity of caring for patients in hospitals, but because the broadening of nursing activities, as shown by the preceding figures, called for ever increasing numbers of trained workers. It is apparent not only that more nurses are needed, but that it is necessary that these new nursing recruits shall be drawn from classes where good home training and educational qualifications constitute a part of their preliminary equipment upon which a nurse's training will be superimposed. Then the performance of exacting and highly specialized duties will be committed to the public service after their graduation from hospitals.

Organizes for Action

The campaign for the one thousand recruits, conceded necessary at the present time in Michigan, found its impetus in the demonstrated needs. The work was initiated by the Michigan Hospital Association and was financed by them but its immediate direction and execution was placed in the hands of a Central Committee composed of superintendents of training schools for nurses, hospital superintendents, and the secretary of the State Board of Nurse Examiners, so that coordination and proper subservience to the larger aspects of the situation were not lost sight of at any time. This Central Committee in turn appointed local chairmen to correspond to the Congressional Districts of the state. The Central Committee furnished the local chairmen with literature for the instruction of speakers and with special literature for distribution in all of the high schools. Too great divergence of method and appeal was guarded against by the employment of a field secretary of skill and experience in organization. This secretary was not a trained nurse, but she understood the educational aspect of the campaign, was interested in it from the viewpoint of a humanitarian movement, and, being a trained organizer, was gifted in selecting and securing the services of people who were representative in the community and combined influence and interest and experience as a contribution to the campaign.

The organization of the local campaign in Detroit was typical and has been outstanding from the standpoint of its intensity, the marvelous response accorded to its local committee, and the attitude of the public to its every effort. The chairman of the local committee in Detroit was Miss Maud McClaskie, instructor of nurses, Harper Hospital. Other members of the committee included Mrs. Henry B. Joy, representing Grace Hospital; Mrs. Joseph B. Schlotman, representing Harper Hospital; Mrs. W. H. Burtenshaw, Woman's Hospital; Miss Ellen Cowgill, in charge of the Young Woman's Christian Association; Miss Grace Ross, head of the Nursing Department of the State Board of Health; Miss Theresa B. Haley, representing the League of Catholic Women; Miss Lena Lake Forest, who is chairman of the nursing activities of the local Red Cross Chapter as well as the president of the state Business Women's Association; Mrs. Wilfred C. Owen, secretary of the Industrial Women's Service Center; Miss Ira M. Gaily, Samaritan Hospital; Miss Mabel A. Thompson, assistant director of the Industrial Women's Service Center; Miss Lulu B. Durkee, assistant principal Harper Hospital Training School; Miss Theresa Martin, St. Mary's Hospital; Miss Elizabeth Cleveland, in charge of the Vocational Guidance Department of the Detroit Public Schools; and Miss Helen Livingston of the Cass Technical High School.

It will thus be seen that vital centers of public welfare as well as the interest of the entire nursing and hospital field were at once secured. It then became necessary to enlist the aid of the moving picture houses of the city and it is interesting to note that their response was immediate and they considered their services given to an educational interest and a public good. Forty-nine theaters carried a small advertisement on the screen daily at all performances for one week. The Committee, a highly representative group, were photographed by a motion picture house and their pictures displayed on the screen in every motion picture house in the city for one week at a time. Publicity appeared in successive and graduated announcements in the daily press and it was centralized because the community union, representing ninety charity organizations, gave the Recruiting Committee their publicity service. So well did they carry the tone of the campaign, and so generous were the newspapers as to space and interest in the project that a wonderful interest was soon manifested by all groups of people in the city and at once the Committee were solicited for campaign articles for such periodicals as the *Business and Professional Woman's Magazine*, the *Detroit Club Woman*, the *Wayne County Medical Bulletin*, and the *First District Bulletin* of the Michigan State Nurses *Club Woman*, the *Wayne County Medical Bulletin*, the Association, and the *Y. W. C. A. Triangle*. In planning the campaign the student nurses's body, representative of the various hospitals, were added to speak to the high school students of the city, appearing in uniform. The Vocational Guidance Department of the city schools met the Committee with a wonderful response and five thousand pupil nurses, including public and parochial schools, were spoken to; literature was distributed to the students and one in every ten placed with the speaker a request for further information on nursing. Stereotyped appeal for public commiseration for suffering humanity gave way to a rational consideration of all the elements that enter into the situation. Facts a plenty were placed in array to demonstrate the need for

nurses for both the present and the future health of the community. The relationship of the nurses to the economic interests of the community, the security of the future generation, as related to their health and their happiness were pointed out. In effect, the scientific and educational situation of the relationship of the nurses to the community was revealed. Constructive health activities, free, though unrelated to charity, but definitely bound up with the responsibility of the community to its children, and the immediate functioning of a world free from the impediments of ill health, were made clear by arguments in some cases, but generally by word pictures.

Depart from Emotional Appeal

The departure from the emotional appeal had its bearing on nursing as a profession and, so interpreted, nursing becomes a profession, not a job; the people were made to see that the recruits must have preliminary preparation and personal qualities as well as proper professional education to make them able to function in these relationships to the public.

The shortage of nurses following the law of supply and demand has served to increase the fees for nursing services and has helped to place emphasis upon nursing as a career. Thus nursing is not urged upon the young women of today entirely as a personal duty to the uncared for, but as a field offering an opportunity for remarkable personal service and unlimited possibility for self-realization and self-expression, as well as a career which furnishes a reasonable standard of good living. It is pointed out as being interesting and being filled with a progressive social outlook. It is placed on an educational basis and constitutes what will assume an educational relationship to our universities and colleges. Culture in its last analysis is an interest in, and a sympathetic understanding of human relationships. Reciprocal influence with mutual teaching is the general law of education, and these constitute the ideal of objective of health service. The past history of nursing does not even hint of its possibilities in the way of new departures.

AMERICAN DIETETIC ASSOCIATION MEETING

The annual meeting of the American Dietetic Association will be held in New York City October 25-27, with headquarters at the Hotel McAlpin. The program includes subjects of interest to the dietitian in public health service, to the hospital dietitian, and the hotel dietitian; in fact, the discussions are of value to all who are in any wise concerned with either scientific or practical phases of food service. The program follows:

MONDAY, OCTOBER 25

Morning Session

Meeting of the Executive Committee.

Afternoon Session

Section on Administrative Work: Miss Mabel C. Little, hospital dietitian, Norwalk, O., chairman.
General Subject: To What Extent Can Mechanical Equipment Replace Employees in Institutional Work?
The College Dormitory.
By Mrs. Elizabeth Grider, Cornell University.
The College Dining Room.
By Miss Cora Colburn, University of Chicago.
General Discussion of Equipment: Menu Making; Its Economic Aspect.
The Dormitory.
By Miss Elsie Leonard, University of Wisconsin.
The Hospital.
By Miss Marguerite Deaver, Mt. Sinai Hospital, Cleveland.
The Cafeteria.
By Miss Emma Baker, Whittier Hall, Teachers College;
By Miss Smith, War Risk Bureau Cafeteria, Washington, D. C.
Economical Buying for the Institution.

Evening Session

Address of Welcome.
By the president, Miss Lulu Graves, Cornell University.
Address.
By Dr. Alonzo E. Taylor, University of Pennsylvania.

TUESDAY, OCTOBER 26

Morning Session

Marketing.
By Miss Susannah Usher, Boston.
Application of Business Principles to the Organization of Institutions.
Training for Administrative Positions in Cafeterias.
By Mr. Roland White, the Colonnade Company, Cleveland, Ohio.

Afternoon Session

Section on Social Service: Miss Blanche M. Joseph, field dietitian, Emanuel Mandle Dispensary, Chicago, chairman.
The Supervising Dietitian in State Institutions.
By Miss Theresa A. Clough, Springfield, Ill.
Social Service in Dietetics.
By Miss Fairfax T. Proudfoot, University of Tennessee.

Evening Session

Diet and Dentition.
By Dr. W. J. Gies, College of Physicians and Surgeons, Columbia University.
The Dietitian in Public Health Work.
By Dr. E. A. Peterson, director of Department of Health Service, American Red Cross, Washington, D. C.
Diet and the War.
By Mrs. Mary de Garmo Bryan.

WEDNESDAY, OCTOBER 27

Morning Session

Address: Dr. Katherine Bement Davis, general secretary, Bureau of Social Hygiene, New York.
Address: Miss Emma Gunther, Teachers College.
Research in Dietetics.
By Miss Hilds Croll, Women's Medical College, Philadelphia.

Afternoon Session

Section on Teaching: Miss Katherine Fisher, Teachers College, chairman.
Dietetics for Nurses.
By Miss Lenna F. Cooper, Battle Creek Sanitarium.
Methods of Teaching Dietetics to Nurses.
By Miss Marion Paterson, Swedish Hospital, Minneapolis.
Review of Literature on Dietetics.
By Dr. Ruth Wheeler, Goucher College, Baltimore.

Evening Session

Address: Miss Sarah Louise Arnold, dean of Simmons College, Boston.
Some Dietetic Problems of Infancy and Childhood.
By Dr. Roger Dennett, assistant professor in the diseases of children, Post Graduate Hospital, New York.

THURSDAY, OCTOBER 28

Morning Session

(At Teachers College)

Economic Aspects of Buying Meats.
By Mr. John H. Kelley, buyer, Arthur Dorr Markets, Boston.

RESULTS FROM INTEREST IN HEALTH MATTERS

The *Statistical Bulletin* for May, issued by the Metropolitan Life Insurance Company attributes the record-breaking low mortality rate for last year in the United States to the war educational propaganada which instructed the public in hygienic matters, improved dietary standards, and centered attention upon the working conditions of wage earners.

If such concentration of effort has brought about these marked results, it may be generally accepted that a large proportion of the disease existing in America is preventable, says the *Red Cross Bulletin*, and far greater results are to be hoped for as time demonstrates the value of the health safeguards that are now being placed about children.

RUSSIA COMBATS HUNGER AND DISEASE

That 50 per cent of the people of Soviet Russia are hungry, though everybody is getting a certain allowance of food, is the declaration of Benjamin Turner, member of the British labor delegation to Russia. "The physical and material condition of the country is so bad they do not attempt to hide it. They have had a tremendous battle with disease. There have been one million cases of typhus, and scores of thousands of malaria and smallpox cases," states Mr. Turner.

The tragedy of all great cities is the tragedy of the child-life of the slums.—Robert W. Mackenna in "The Adventure of Life."

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

RACE STOCK AND MORTALITY

THAT racial differences might account for variations in mortality rates in given communities has been the general belief. The peculiar susceptibility of the Irish and comparative immunity of the Jew to pulmonary tuberculosis have long been recognized, and similar variations have been noted among certain races for other diseases.

The findings in the recent studies by Dublin and Baker[1] on the mortality of race stocks in Pennsylvania confirm those of Dublin's earlier study[2] of mortality of race stocks in New York, and reveal much interesting and enlightening data on the effect of immigration of European race stock on the demography of the United States; also on the question whether residence in this country has had any effect on the mortality of these race stocks since their arrival.

The native born of native parentage shows a mortality lower than that of the native born of foreign or mixed parentage, and lower than the rate for the foreign born. The foreign born, and the native born of foreign or mixed parentage, agree much more closely with each other than with the native stock. The death rates for the British, Germans, and Irish are greatly in excess of the rates for native born, but the rates for Austro-Hungarians, Russians, and Italians are more favorable. The higher rates among the first group mentioned explain the apparent exception at ages twenty-five to forty-four years, at which period the foreign born have a great advantage over the native born of foreign or mixed parentage. It will be recalled that immigration of the first group reached its highest point in 1850 to 1870. about thirty to forty years previous to that of the latter group, so that the deaths among native born of foreign or mixed parentage between the ages of twenty-five to forty-four were mainly of British, German, and Irish descent. These rates were higher than the rates for foreign born of ages twenty-five to forty-four, who were mainly Austro-Hungarians, Russians, and Italians.

Noticeable differences are evident when the mortality of race stocks in this country are compared with the rates in their own country. The death rate in 1911 per 1,000 males in England and Wales was 6.4 as against 8.4 and 8.7 for British born males living in Pennsylvania and New York respectively. The death rate for males in Germany was 6.4 per thousand in 1908-1913, as against 9.0 and 10.0 for Germans in Pennsylvania and New York. Italians in Pennsylvania and New York show little difference in their death rates from those prevailing in their home country. The Irish have lower rates at home. On the whole the rates are higher in Austria and Hungary than among their emigrants living in this country.

The extent of violence, excluding suicide, as a cause of death among Austro-Hungarians, Russians, Italians and other foreign born, is very great, and is undoubtedly the result of the perilous and unskilled occupations in which these immigrants engage. It is the most important cause of death among Austro-Hungarians and Italians, and the rates from this cause are several times higher than among the natives.

The Irish suffer extraordinarily from tuberculosis, though the Italian, Russian and Austro-Hungarians have low rates. Practically every foreign group shows higher cancer rates than do the native born. The Irish present the highest rates from organic diseases of the heart, pneumonia, and Bright's disease. The position of the Italians relative to cancer, organic heart diseases and Bright's disease is quite favorable. This would indicate the need for special public health work among the people of foreign origin.

According to the authors quoted, "the superior vitality of the native stock is fully demonstrated as to both sexes; but the superiority of the males is more striking than that of the females. The presence of the foreign stock has therefore had the undoubted effect of increasing the total death rate in New York and Pennsylvania, especially after the age forty-five is attained."

JULES SCHEVITZ.

1. Dublin and Baker: The Mortality of Race Stocks in Pennsylvania and New York. Quarterly Statistical Association, March, 1920.
2. Dublin: Factors in American Mortality. American Economic Review, 1916, vi, No. 3.

OCCUPATION AND TUBERCULOSIS

INDUSTRIAL diseases may be due to certain occupational hazards inherent in the particular industry, to failure on the part of the employer to provide satisfactory health and sanitary conditions in the factory, to physical weakness, improper food, faulty personal habits of the worker, or to certain environmental factors surrounding the industry, such as malaria, water and soil pollution, and hookworm infection. The mitigation of these existing ills depends upon the employer, the employee, the physician, and the state.

Tuberculosis as an industrial disease may be due to

one or all of these factors, and varying emphasis has been placed on one or another of these causes. Air, vitiated by dust, the products of respiration, combustion, and decomposition, the presence of toxic fumes and gases, operations encouraging postural deformities, exposure to dampness, extremes of heat and cold, sudden changes in temperature, and exposure to industrial poisons, all contribute to respiratory diseases.

Dusty occupations play a part in causing pulmonary tuberculosis. Hoffman's studies on the mortality from tuberculosis in dusty trades indicate that not all dusts are equally harmful. "It is generally admitted," says Oliver,[1] "that all dust, unless it is soluble and chemically harmless, will, if inhaled, injure the delicate structure of the lung. Some kinds of dust, such as pure silica, may cause permanent injury to the lungs, whereas coal dust—notably coal and shale dust— may cause no cumulative injury unless inhaled in large quantities. . . . Some physicians hold that fine coal dust is not destructive but may be really healthful to the lungs in consequence of the small amount of calcium present in the dust."

Nieszytka, quoted by Kober,[2] reports that 76.5 per cent of all deaths among sandstone workers in Hanover are caused by tuberculosis and, according to Grabb, tuberculosis in limestone workers is the cause of death in only 7.5 per cent of the total mortality.

Wide variations in tuberculosis mortality in occupations exposed to similar dusts can be observed from Hoffman's original tabulation. While 25 per cent of all deaths among street car conductors and motormen, and 33 per cent of all deaths among coachmen are due to tuberculosis, only 12.9 per cent of deaths among street cleaners are due to tuberculosis; the proportionate mortality from pulmonary tuberculosis is 22.1 per cent in knitting mill employes against 49.2 in lace weavers; 23.3 per cent in bakers and 36.1 per cent in cigar makers. From these figures it is evident that factors other than dust are to be considered in explaining the tuberculosis mortality. Kober concludes that "exposure to dust alone does not account for the undue prevalence of tuberculosis in certain occupations, and that every factor which undermines the general health of the individual is at least equal if not of greater importance in determining the course of the disease."

Placing the occupations not according to exposure to the different varieties of dust, but in an ascending scale according to percentage distribution of pulmonary tuberculosis, Kober explains the position of each occupation in the scale, giving the possible influence of physique, standard of living, the effects of alcohol, lead, mercury, and other industrial poisons, and the proportion of other causes of death. For example, a low rate from tuberculosis may mean there is an unusually high rate from accidents, or some other cause. The high percentage of deaths due to violence among steam railway employes, lumbermen, and raftsmen, miners, and quarrymen is responsible for their low percentage from tuberculosis.

Kober's tables indicate that tuberculosis is infrequent in occupations involving outdoor life combined with muscular activity; but it also shows that it is infrequent among bankers, officials, and hotel keepers—presumably because of the higher standard of living. The percentage in saloon keepers is 15.5, hotel keepers 9.3, and bartenders 26 per cent, showing clearly the rôle of chronic alcoholism as a cause of tuberculosis. Carpenters and cabinet makers exposed to various dusts have a percentage as low as commercial travelers; but the latter have a higher percentage from digestive diseases, indicating lower state of nutrition. The high rates for draymen, hackmen, and teamsters may be attributed to exposure to weather; but they also have high rates for alcoholism. In Great Britain the percentage in private coachmen is much lower, probably because of better habits and living conditions. The percentage in clerks and sales women is 38.7, as compared with 15.8 in salesmen.

Improvement in personal hygiene and general sanitation will offer the best safeguard against tuberculosis, according to Kober. "When we supply our children with healthful school rooms and teach them the value of pure air, sanitary homes, proper and sufficient food, physical culture, baths, and suitable clothing, and the importance of pure clean lives, the lessons taught will be applied in the homes and workshops in the nation."

JULES SCHEVITZ.

1. Oliver, Sir Thomas: Phthisis and Occupation, Jour. of Indust. Hygiene, 1920, ii, No. 3.
2. Kober, George M., M.D.: Occupation in Relation to Tuberculosis, Public Health Reports, 1920, xxxv, No. 13.

THE DELRAY HEALTH DISTRICT

PROPOSED changes in the Delray health district in charge of the Detroit Health Department provide for the establishment of baby and prenatal clinics, apart from the health center, in order to make these clinics more accessible to the mothers of the district. It has been found impractical to locate such clinics at the geographical center of the district. It is claimed that a single health center building to serve the entire district is unsatisfactory. "The most feasible arrangement," according to George T. Palmer,[1] epidemiologist, "is to have a central office readily accessible from all parts of the district, which will serve as headquarters for the field nurses. In this building there will also be a tuberculosis clinic and a general diagnostic clinic. The object of the diagnostic clinic will be to reveal correctable ills and direct people to the proper agencies for treatment."

The Delray health district has been in operation since last October and cares for about one hundred thousand people, covering an area of over six square miles. An interesting observation from the influenza-pneumonia statistics given out by the Health Department shows that the proportion of reported cases was just as high in the Delray health district, containing many foreign born residents, as it was in a section of the city occupied by middle class native Americans.

SCHOOL FEEDING AND MALNUTRITION

School feeding is given a lesser rôle for dealing with defective nutrition than the one ascribed to it in earlier days, according to John C. Gebhart, in the August issue of the *American Journal of Public Health*, but it is one of strategic importance. The school lunch must be made the center from which radiate the various activities dealing with the child's nutrition.

Nothing is gained if at the end of periods of special feeding the child lapses back into its former state. The factors which determine the child's nutrition are indissolubly linked up with the home environment and the standard of living of the family, which makes it imperative to combine group instruction in food and health habits with periodical visits to the home to secure the interest and cooperation of the parents. The planning of meals with a maximum food value at a minimum cost promotes a better appreciation of the entire nutrition program.

1. Palmer, George T.: Weekly Health Review, Detroit Health Department, July 24, 1920.

DOCTORS AND HEALTH LECTURES

By FLORENCE L. MEREDITH, M.D.

DOCTORS do not talk enough, either to individuals or to groups, and in failing to do so are holding back the health of the public to a marked degree.

Since the war began there has been a great change in the general attitude toward health and disease. Only the fit were able to be of use to their country and an honor to themselves. Girls who went into industrial life and business life found that their opportunities for advancement were sharply limited, even the holding of their positions precarious, unless they were well. Out of about ten thousand examinations during the period of the war, made on girls in industry and business, it was found by us that only about 5 per cent were really in as good health as was possible for them. Not that all the rest were really ill—only about 10 per cent, in fact—but they were much less well than every human being has a right to be, or than is the duty of every human being to try to be. At that time the public began to feel that there is something not quite right about its general health, and began to manifest interest in the problem of how to improve it. It is time now to keep this tide of interest in health rolling on in the right direction until people are as proud of their health as in the past they have been, especially women, of their ailments.

THE URGE TO PROGRESS

Whatever is generally conceived as a proper objective tends to become possible of achievement. Nothing will serve to daunt an effort that has as its motive this popular urge.

The pity is that such irresistible impulse is not back of more movements of moment. To the fact that people have been left in uncharted ways in health matters may be ascribed the success of charlatanism in medicine and healing cults in religion.

The only rational basis of action is enlightenment, and the right source for such a program is through the ethical physician, willing to back with sound knowledge an effectual enthusiasm for health.

Health Sanctions from Physicians

The people naturally turn, that is, most of them still continue to do so, to the members of the medical profession for the health they are seeking. If it can be shown by doctors that there is any way whatsoever that this health which is becoming so popular can be achieved, it is certain that they will at least listen to what the doctors say; and a large number of them are in the mood not only to listen, but to try almost anything which comes to them with any authority back of it.

Fortunately, it so happens that science has advanced to the extent that there is a great deal for doctors to say on this subject. Some few of them are saying it, but the vast proportion are sticking to the old established method of maintaining a "professional" silence on health subjects, both in the office and in public. It would hardly seem either professional or ethical, when people are almost literally clamoring at one's door for some advice as to the ways of getting and keeping well, steadily to ignore their health education until they fail in their self-directed search and illness comes upon them. There are many theories about the maintenance of health which have become established facts—facts which the public should have at its disposal; and yet we daily find, even in the city of New York, that most enlightened of all cities, an appalling ignorance of these same facts.

If there were plenty of doctors with plenty of time and money, the ideal would of course be talking to individuals. I think it was Richard Cabot who first advocated taking the patient into one's confidence, and thus horrified physicians everywhere at the thought of dropping off the mantle of mystery hitherto associated with the wonder-workings of the medical profession. Some rightly objected that the patient would not understand what was told him and would be made worse by half knowledge. However, that all depends on what is told him. He should be told only what he can understand and what will help him. I have seen pathetic results from trying to enlighten a patient on a pathological condition, but never any ill effects from a clear, simple explanation of the why and wherefore of health.

Group Teaching of Health

But since at present there are not enough doctors to wage a constructive health campaign in the life of each individual, and since all individuals do not place themselves in a position to get personal advice, we must resort to lectures given to groups—the last thing the average physician would choose to do; but to refuse any longer will be to deprive the public of what it ought to have. It is possible that those who care for talking and can do it, might be permanently retained by states and organizations for this purpose, as they are now employed for lecturing on certain limited aspects of individual and public health, notably venereal disease. Provided these physicians still retain some clinical contact with individuals and do not become solely lecturers, such an arrangement would appear to be very satisfactory. It would not, however, exempt the average doctor from his duty to give the groups of individuals with whom he comes in contact more than they are in the habit of receiving from him, since he understands them and their needs better than anybody else. There should be available to groups everywhere more or less continuous series of lectures on health. It is an inexhaustible subject; the demand is commensurate with it already in many places, and can be made so everywhere. Every town where I have lectured has been famished for lack of such lectures, even New York, although the leaders of some of the groups were not aware of it.

The natural field for such lectures is groups as they naturally are found in factories, stores, clubs, unions, church organizations and the like. The advantage of already formed groups is that they are more likely to consist of individuals somewhat alike in their needs, although this is not always the case. All sorts of ages and varieties and occupations may be represented in one small factory. Most physicians have some such group in their care and can give them collectively far more than it is possible to give them as individuals.

The group spirit can be utilized to advantage in stimulating an interest in good habits which one person alone might be interested in only with difficulty, *i. e.*, gymnasium

exercise and sports. Group teaching has at least this one advantage over individual teaching, that it infuses a spirit sometimes impossible to arouse in individuals singly.

Two Reasonable Aims

There are two types of lecture, the purely *inspirational* one, and that formerly called instructive, but now more aptly called *educational*. The former will have to be utilized very largely further to stimulate the partially awakened hope for health, and to instigate attempts on the part of the individual to achieve it in his own life. The other type is to be used as follow-up after such an interest has been aroused, and as supplementary to medical work already under way. Our mistakes in the past in dealing with groups by means of lectures have been chiefly that we tried to give too much and too detailed information; too little educational inspiration was offered toward health and too little practical advice. In my early experience, when scheduled to talk on health, I was in the habit of giving a series of exhaustive and perhaps exhausting talks on how to live, with many dogmatic rules about health. The average individual listening to such a talk about hygiene, carefully excludes himself from any application of what he hears, as he sees himself and his neighbor apparently getting on fairly well without ever having applied these rules. Or if, perchance, he does not feel quite fit, he usually has his own theory of what ails him which such platitudes have failed to shake.

Formerly in a single lecture I tried to condense as many of the important points as possible. Now I make a single lecture or an introductory lecture an effort to show the necessity and desirability and possibility of health, what good health really is, and the folly of idly putting up with any discomfort or pain or lack of vitality without at least finding out through a complete physical examination what the cause of the trouble is, what to do about it, and then doing it, whether the alternative be medical or surgical treatment or getting better habits of living, the latter being by far the commonest need. I try to show how large a part of ill health or lack of health is due to small things which can be perfectly well corrected or avoided, provided the intelligence and the character are such as to make any sort of achievement possible. In any lack of health there is either something wrong, needing treatment, or there is nothing wrong but habits of life. We have here to exclude the inevitable effects of heredity and environment, but, fortunately, they are not always inevitable and can often be mitigated. In the former case, the advice is to undergo the treatment and get rid of the trouble; in the latter case, it is essential to find out what habits are wrong and correct them and enter into the joy of living. The stimulus toward health is the first essential in any lecture on the subject.

Scientific discussion of pathological conditions, and the imparting of a great amount of un-utilizable knowledge are to be avoided. Pathological conditions should be mentioned only to give the hearer the zeal and the knowledge of how to avoid them. But even this point of view is less constructive than giving them positive health as an aim. Moreover, if the emphasis is on ill health rather than on health, all sorts of phobias may be aroused which will naturally make the health worse rather than better as a result of a well intentioned lecture. I remember talking to a young woman who had been to a public lecture on the "ear" in which Ménière's disease was described so well and vividly that for months her mind had been so centered on the workings of her semicircular canals that she almost thought herself into ill health. *Confidence in the certainty of health provided health laws are kept should be bred in the individual—not its opposite, a fear of disease if its laws are broken.*

That health is a matter in the individual's own hands to a very large degree, and not half so much as we think is dependent on heredity or environment or the doctor, is an important point to bring out. It is also important to show that those who persistently put the blame and the responsibility entirely on someone or something other than their own habits will never reach the peak of joy and efficiency in their own maximum of health. Whatever can be invoked to fire the individual with a high aim and a strong purpose very much needs to be said.

Single Lectures or Series

If there is to be only one lecture, very little specific advice is given, the individual being recommended to seek the aid of his own physician. If there are other lectures, it has seemed advisable—and has been demonstrated as practical—to try and give a general view of the working of the body; how energy is taken in in the form of food, air, and water; what processes it goes through in the body; how energy is utilized in work and exercise and play; how the waste is disposed of; and how energy is recuperated in rest and sleep. Very often the individual hearer will come to the conclusion while listening to such an outline of physiology that his body is a wonderful thing and needs more thoughtful care. Sometimes he comes to definite conclusions as to ways he can improve his habits. Sometimes he decides to talk the matter over with his family physician and have an examination, which is what he should do.

The only rules given are those recognized as being scientifically applicable to the vast proportion of individuals not ill. The effort is not directed toward making individuals think themselves able to conduct their lives entirely alone to the best interest of their health on the knowledge that can be given them in a series of lectures. It should be understood that the lecturer is not contradicting anything the family physician may have said or may say in connection with any individual case; that he is giving principles generally desirable to live by, but subject to many variations. Many who are in fairly good health will get enough from such lectures that they will be able thereby to remedy some of their faulty habits and live at their best. For those who are not well the main aim of the lectures should be to stimulate them to want to understand their own health through conferences with their own physicians.

Provided we have interested our hearers enough in the question of health that they have followed the advice to consult their doctors, it is to be hoped that their expectation of a serious consideration of their health problems will not be lacking. Feeling not quite up to the mark and being laughingly told after a little percussion and auscultation—sometimes not even that—that they are all right, is not going to satisfy a person who has been told that there is something everyone can do to make his health better and more secure. Too many, however, needing neither medicine or surgery, are given nothing at all to help them, perhaps gain a false sense of security that they are on the right track, to harm them. It should be just as much a disgrace for a physician to fail to give advice in such a case as it is for him to be careless in the use of drugs. Unfortunately, advice is not in the same category, legally, as are drugs.

It may be argued that it will be a long time before people will feel that they can afford any consultation with a doctor unless they are absolutely in need of it. For those who can afford it at all it will probably be more

economical of money, and certainly more economical of health, to attend to any lack of perfect health early, while it is a relatively simple matter to set it right. For those who cannot afford a private physician there should be hospital service, including examination and health advice,[1] just as there is now for the treatment of sickness. We should first see that money spent in the care of the health before it is lost actually proves an advantage of the spender of the money by giving him what he is paying for,—health education. He will then not hesitate to invest. Think of the millions that are spent annually for patent medicines, a large proportion of which are taken by those who are not really ill but feel that their health needs "building up." The sum so expended has been estimated to average several dollars a year a person. The same amount of money invested in health education provided by qualified physicians would lead to results so much better that the improvement in national health can scarcely be surmised. It seems to me that we are not urging an impossibility when we suggest periodic examination and practical advice on habits for each individual in the country.

A Part of the Necessary Service

In cases were individual follow-up of the usual type of medical work is easily possible, as it would be in the case of industrial physicians, such medical service should be the main point of the lectures. But there are many things which industrial physicians say to individuals over and over again, many times a day, which could be said to large groups with considerable economy of time and effort. When the cases come through pretty rapidly, as industrial examinations are now done,[2] it is almost impossible to give any reasons for the suggestions made or, indeed, to give all the suggestions one might if time were allowed for this valuable work. Nothing will ever supersede personal discussion based on a physical examination. But lectures can be advantageously utilized to cover the whole field for the individuals collectively. In addition to the groups already under medical care, but not yet supplied with lectures, there are those groups which have no medical care at all, such as factories and stores employing no doctors, or only nurses. Women's clubs, church organizations, and forums could do no better than to offer their audiences health lectures in place of some of the good old standbys of less practical value and also of less general interest. Culture, not spelled with a K, should certainly include at top of the list, Health Culture.

The prime necessity, if the work is to be educational, is that no rules be given without reasons. In fact, it is desirable to give reasons and let the hearers formulate the rules themselves. This method is education, not instruction, which makes all the difference in the world in the future application of the newly acquired knowledge.

Arguments Against Health Work

Three objections have been raised to the idea of more lectures on health. The first is that the public will learn to do without doctors in private practice if every organization and group supplies its members with health education. It is the same objection that was originally raised against any industrial medical work and the argument has been entirely refuted. Health lectures will not have this effect any more than will any other kind of medical work. Furthermore, as the individuals will be advised to visit their own doctors for any further advice they may need—and it should be emphasized that most of them do need it—the probability is that more patients than ever, only an increasing proportion of early cases, will be seen by general practitioners, family physicians, and also by specialists.

The second objection is just the reverse of the first, that both industrial and outside physicians will be swamped with patients who are not urgently in need of care, to the detriment of those who are. But, as I have indicated, the doctors will probably ultimately find themselves with nearly the same number of patients as usual because fewer of them would become ill, and some of the others would learn how to get along intelligently without needing medical advice so often.

The third objection is that so much talk about health is going to make people into health cranks. This depends, of course, very largely on the attitude of the physicians to whom they listen. It is as possible for people to take a normal, sane interest in looking out for their bodies and conducting their physical lives as it is for them to take a normal, sane view of business problems to which they must give considerable attention, without losing their balance about it. Many people know the ins and outs of their automobile or the machine they run in the factory, who have no idea at all about the running of their bodies—an analogy which is old but ever new. It should not make a normal person disturbed to be given an idea of that most remarkable machine of all, his own body. To be sure, many people do become morbidly absorbed in the contemplation of their own mysterious "works," but it is usually from lack of a real understanding of them and not from too great an understanding. What they do not understand they are more likely to worry about. Modern methods of psychology have proved this. A little knowledge is a dangerous thing, if given in any number of possible wrong ways and wrong times to wrong people; but the right sort of physician can make neurotic people less so rather than more so by judicious information.

I have seen girls who, while mystified about physiological processes, were morbidly concerned about them, but who could give these facts their proper weight and value when their significance was understood. Thus, with the danger in mind of the possibility of making health cranks, it can surely be avoided. Even if one appears here and there, a system should not be condemned which is for the greatest good of by far the greatest number. They are, moreover, less likely to become abnormal in this respect if they are on the hygienic régime which would logically follow health education than they would be if they waited until real ill health is established before taking a close interest in their bodies, at which time they are almost sure to become cranks if there has been any initial tendency in that direction.

It is doubtful whether too much attention can ever be given to the question of health except in the few cases in which it becomes a sort of worship of health, resulting in making the individual not a crank, but self-centered. I have seen girls made intensely selfish for a time, disregarding any and all other obligations in looking out for their own physical good; but, when they ultimately realized that their self-development was not the only end to be gained, in order to become a sort of Nietschian super-woman, but that they may also fulfill better their obligations as a part of a great whole, then came an appreciation of the fact that the need of one's health may sometimes clash with still more urgent needs, and must for a time perhaps be definitely set aside. Living in trenches, for example, could hardly be called ideally healthful; yet a greater thing than health of the indi-

1. Meredith, Florence, M.D.: Health Clinics, MODERN MEDICINE, January, 1920.
2. Meredith, Florence, M.D.: Physical Examinations, Jour. of Industrial Hygiene, February, 1920.

vidual was thereby achieved for the race, and often for the individual as well. But these departures from the path of health must always be deliberately understood ones, and the path must be resumed as soon as it can with honor.

Arguments Against Health Lectures

To sum up, the function of group teaching, which is necessary in order to cover the field of health education more completely than can now be done by individual methods, is first to stimulate, then to educate. Those who do not believe that this can be done are not familiar with the signs of the times. We have thought that the public could be interested in its public health by being forced into it by boards of health. We have thought that the public could not be interested in its personal health because there was no force to compel him. We have ignored the possibility of making his own desire for comfort and happiness and efficiency a greater force than any external compulsion. Pressure of circumstances has already partly done this. The rest of the task is one for physicians to undertake. One way physicians can do this is to utilize in every case he sees a broad scientific knowledge of the subject of health; and to demonstrate his belief in the possibility of much better health resulting from much better habits; and to feel, himself, a great enthusiasm for the full, complete living which is made possible only if the health is right. This is, of course, better done in private consultations; but because it cannot be quite so well done with groups is no excuse for not doing what is possible in that way, provided the importance of the personal consultation is not minimized. The lecture certainly offers a too important way of teaching health to be any longer neglected.

HEALTH AND THE RURAL SCHOOL

By LOUIS WIN RAPEER, Ph.D., President, Research University, and LOIS M. CHRISTENSEN, A.B., War Department, Washington, D. C.

THAT people who live in the country are healthy seems to be taken for granted by many. Such expressions as "back to nature" and, in reference to city dwellers who may be persistently afflicted with some bodily ailment, "You should get out into the country for a while," are indications of this general idea. It seems only natural, as indeed it should, that, with floods of sunshine, unobstructed breezes, foods fresh from their natural sources, and bodily exercise a part of each day's program, the human creature placed in the Garden of Eden to have dominion over all, should fall but little short of perfection.

Facts Measured by Theory

It will prove interesting to give a little consideration to the facts and see how they measure up to the theory. Various reasons have made it desirable to ascertain with some degree of accuracy the health conditions of rural communities, comparatively much more difficult to determine than similar facts for urban populations, where citizens and their activities are to a considerable extent classified and regulated for the good of all. Nearly every one has some conception, however vague, of the congested districts of large cities where the ignorant and unfortunate are crowded together in dark and unventilated habitations and in streets whose atmosphere is forever fetid with the odors of decaying food and refuse of every description. Here it is that those born in poverty and those reduced to poverty from a more fortunate state find refuge, poverty leading to ill health, and ill health in turn increasing poverty. One expects the statistician to report a high death rate under such conditions, and the expectation is not disappointed. So deeply have the unfavorable aspects of city life impressed themselves upon many minds as to give rise to the expression, "God made the country but the devil made the city."

But the country, where more than half of the people of our nation still live, is free from the handicaps to which the poor in cities are subjected. There the people have air and sunshine, fresh food, and opportunity for healthful exercise. Those broken in spirit and feeble in health do not take refuge in the country; neither does the poor and ignorant foreigner, his body and mind affected by the oppressions of Old World tyrannies, seek an asylum in the open fields of our free land. Beyond doubt, the rural community is free from many menaces to health against which cities, especially large cities, must contend.

However, a study of health statistics may only give further proof of the accepted truth that the greater the task the greater the incentive to accomplish it, with the consequent development of the necessary efficiency. In a special study of rural sanitation, begun in the spring of 1914 by the United States Public Health Service, some very significant and surprising facts were brought out. In the census year of 1900, of the total number of deaths the percentage resulting from typhoid fever was 3.75 in the rural districts and but 1.78 in cities. In 1915, from twenty-five states from which figures were tabulated, it was found that in cities with a population of 10,000 or over, the death rate per 100,000 averaged 13.7; while in rural districts, including towns of less than 10,000 population, the rate was 13.6. Although it is most gratifying to find from statistics that the death rate from typhoid fever in the United States has been reduced at least 50 per cent, it must be noted that this is largely, if not entirely due to sanitary progress in the larger cities. From facts gained by intensive and extensive study of health conditions throughout our country it becomes evident that the rural community has problems which have not yet received the deserved attention of its own members nor the Government as a whole.

Investigation has shown that in view of its natural advantages the rural community does not enjoy the blessing of health in a degree that might reasonably be expected. Our next consideration must be to discover the causes. The death rate is governed largely by communicable diseases, of which typhoid fever is one of the most prevalent, and the extent of which can usually be taken as an index of sanitary conditions in a community. Its prevention serves at the same time to prevent many other diseases, such as hookworm, dysentery, and summer diarrheas of infants. Widespread understanding, then, of the manner and means by which these disease germs are communicated will be necessary in order to prevent the contagion. Fundamentally, in the spread of disease the germ

must pass from an infected person to others, who thus also become infected. The various means by which this transfer may take place must be considered in order to provide adequately against the diffusion of the germs.

How Infections Are Carried

Obviously, the waste matter and impurities, of which disease germs are the most virulent form, are being constantly eliminated from every living body. This is accomplished in three ways: through the pores of the skin, the exhalation from the lungs, to which might be added discharging of infectious secretions of the nasal passages and throat, and the excreta from the alimentary canal. By the same sign, through any of these channels a healthy body may become inoculated with disease germs. To guard against the spread of communicable diseases, which in general means the preservation of health, these three gateways must be guarded. The pores must be kept open and clean by adequate bathing and careful avoidance of contact with clothing or towels that have recently been used by a possibly infected person. No disease germ should be permitted to enter by nose or mouth. There must be regular and copious breathing of pure air which vitalizes the blood, while at the same time affording an opportunity to discharge from the lungs the impurities which they have filtered out from the blood. Since for most communicable diseases the principal mode of spread is by droplets of saliva containing germs thrown out in breathing, care must be taken that the inhalation is not contaminated by the breath of others. Finally, the natural sewage system of the body must be kept to the highest degree of efficiency and the waste and germs so disposed of that they cannot possibly infect other persons.

If germs were transmitted by personal contact only the problem would be comparatively simple. When, however, it is considered that the great germ carriers are flies, mosquitoes, and other insects, as well as rats, mice, cats, dogs, or other animals, it becomes evident at once that control of all these lines of communication involves no small task.

In view of these considerations, it is not so hard to understand that rural health conditions are not all that might be desired and that scientific, systematic treatment is essential here as in all other human affairs if anything like success is to be attained. As already indicated, sanitation in the larger cities has made wonderful progress, because it was an accepted truth that living conditions are artificial—which, by the way, is not a term of reproach—and that changed conditions must be met with corresponding precautions and safeguards.

In rural communities the original, and too often the succeeding inhabitant, relied too largely on natural resources and could not or would not see the necessity of complying with the fundamental laws of life, especially when the health of his or his neighbor's family was concerned. The basic idea of "living in the country" was to wrest from the soil, first a living, a competence; then, perchance, wealth. All other considerations were subservient to this. It must be conceded that at first, unaided, the struggle was not an easy one, and appealed only to the more hardy and those with simple, quiet tastes and few desires. With the one central purpose, it is not so strange that other considerations, those which perhaps we might call the more humane considerations, were treated as of little importance. To wrest its treasures from the virgin soil was the primary object; anything that was conducive to this end, anything that represented the attainment of this purpose, was worthy of thought and care. The battle was to the strong.

Hence it is that one need not feel surprised to find on the domain of the more successful farmer well filled barns and stables of the most substantial and convenient kind, farm machinery of the most efficient and modern make, and even automobiles of the latest and most pretentious models, while among the livestock—horses, cattle, hogs, poultry—the best of breeds are found. At the same time we may find a sickly wife and untrained or half-trained daughters trying in an uncertain way to make a home in a house not half so good as the barn; where no one has had time to think of screening all the doors and windows in the summer time; where a complete bathroom, which would not cost half so much as the automobile and would have done fifty times as much good, is an impossibility.

The same comparative valuations can be detected in the great majority of homes of the less affluent, down through all grades. The rural condition is a state of mind. To increase the value and productivity of the soil and its accessories—that has been the one great purpose. The intrinsic value of the human element has not been sufficiently considered and, in ignoring the claims of the higher nature, man has here, as not infrequently elsewhere, suffered also a material loss.

Must Introduce New Ideas

How the rural school can be used as a medium for the introduction of new ideas and habits that shall revolutionize the mode of living and bring to the community the health which it is ideally supposed to have, is a question worthy of serious consideration. Its unique position as a connecting link between the local, personal interest of the community and the commonwealth, of which the community is a unit, makes it the natural channel for the enlightenment which must precede any material changes. State and national organizations are created and financed to study conditions, to make careful analyses of their findings, and to recommend remedies for whatever they find detrimental or injurious; but, in a large measure, it remains with the community to adopt or neglect such recommendations. If county and state authorities were in control of the sanitary conditions of rural communities even to the extent that they exercise control over the academic requirements of the public school teacher, the process of improvement would be more simple and direct. But with so little vested authority, the problem remains largely one of popular education.

First, then, the rural citizen must be awakened to the fact that he and his are not enjoying the blessing of health which might be attained so easily. In this, one of the simplest and most effective incentives to human effort can readily be applied—the awakening of the spirit of rivalry. In the heart of every country man there is a smouldering grudge against his city cousins, a latent suspicion that he is looked down upon because of his crude and simple manners and his ignorance of the sciences and appliances that make city life so attractive. If he can be led to desire that which he should have, the battle is half won. Medicine administered in the form of candy is often as efficacious as that offered and taken "because it will cure."

In the effort to eliminate insanitary conditions and promote every activity that would be conducive to the well being of the community, a judiciously applied suggestion of "the way they do it in the city" often meets with a ready response. For example, let the rural teacher exhibit to her school pictures that appear from time to time of New York school children being instructed in the proper manner of using a tooth brush. In this con-

nection the occasion can be used to explain the fundamental purpose and need of this bit of personal sanitation. The fact that a great deal of sickness is caused by germs that originate in the mouth may be emphasized. To this practical presentation of the facts there may be added by the way the little remark that it is sometimes said that "there are two kinds of people, those who brush their teeth and those who do not." The combined appeal to practical advantage and personal pride will sometimes work wonders.

In the study of hygiene or such general presentation of the subject as the limited curriculum of the rural school permits, instead of bestowing such painstaking care to impress upon the minds of the pupils the fact that in the human skeleton there are two hundred six bones, with the name and number of each, the really human teacher, with a love of life that overflows in a desire to see her pupils developing in accordance with the laws of nature which she is supposed to teach, will find many opportunities to present lessons of vital importance to their physical betterment. The effect of improperly cooked or insufficiently masticated food will be explained. The very great factor that physical health becomes in ultimate success of any kind will be pointed out and dwelt upon, giving, perhaps, such examples as Theodore Roosevelt and Robert Louis Stevenson, the first of whom started the battle of life with a brilliant mind and a weak constitution and who literally built up a vigorous physique by systematic care and exercise, and the latter of whom by as carefully and systematically measuring his food and daily tasks, prolonged his life of usefulness far beyond that which would otherwise have been possible.

In innumerable ways incident to the teaching of the prescribed subjects the wise teacher can inspire her pupils with a desire for personal excellence and wholesomeness that will open the way for the many material reforms so badly needed in many rural communities. Laws and public regulations are good and cannot be dispensed with; but in our America, if nowhere else, we cannot, nor do we wish to, depart from the fundamental idea that our government must be by the will of the governed. To enlist that will, then, in the cause of improvement is the logical means of progress. While teaching the children, and through them the community in general, that health is a thing greatly to be desired, as necessary condition for the full enjoyment of life as well as a source and foundation of the power that every normal human being covets, practical lessons in its attainment can be given. Having pointed out that even a sickly child may build himself into a robust man, that it all depends upon how the game is played, it will not be hard to keep up a real interest in such things as breathing properly and keeping the various muscles of the body in trim by appropriate exercise.

Which Type Shall Dominate?

While convincing the farmer folk that the most valuable crop that is growing is the crop of boys and girls, the future men and women, who may easily dominate the affairs of our country if they so will, specific lessons in hygiene and sanitation may be given. With the growth of self-respect, that is, the realization of one's personal worth, there comes a carefulness that is not otherwise found, a care for one's self and likewise a care for one's neighbor. For instance, among the less experienced and oftentimes diffident country children, in contrast with the easy self-possession of the great numbers of children in city schools, there is a marked tendency toward communism, as in wearing one another's hats or clothing, using the same towel or even handkerchief, and drinking from the same cup—all of which practices are fraught with many dangers to the health of the individual and the community. As the desire for health and the avoidance of infection becomes a habit of mind as well as a matter of understanding, the insanitary result of flies, bad odors, personal uncleanliness, and the like, will be given a more effective consideration.

To an extent that makes it a subject worthy of serious thought there is a real ignorance of the causes of sickness which often gives rise to harmful superstitions on the part of many people, affecting even some who are comparatively intelligent. There seems to be in the human heart an inherent tendency to attribute to the gods whatever is not understood. That sickness and death have too often been regarded as "dispensations of Providence" against which no struggle should be made, is indicated by such expressions as "everyone has to go when his time comes," such resignation being declared, when to the enlightened it is perfectly evident that disease and death were the result of contaminated drinking water or failure properly to dispose of sewage, garbage, and other infected accumulations.

It would be time well spent in teaching history, to dwell upon some of the awful scourges and epidemics, and make it clear that almost countless lives could have been saved but for the ignorance of the causes of the disease and the unclean habits of the people. The lessons should be made absolutely clear and practical by calling attention to the fact that the same or similar conditions may or even do exist in that very community, even though easily remediable. If at all possible, actual illustrations should be made, as, for example, by analyzing polluted water or presenting an illustrated scientific description of such analysis, together with the results of experiments with such disease germs. This can also be applied to other means of infection, such as milk improperly handled or from diseased cows, or the handling of clothing or other articles that have been recently in contact with diseased persons.

As a suggestion in regard to means by which the rural school in the person of the teacher may contribute toward making the community a health resort, there might be diffused a more illuminating interpretation of the motto of our country, *"E pluribus unum"*; it might be applied to that very community by showing how each farm may have all the sovereign rights of a central gov- that each and all are benefited by having a central government, even with highly paid officials, each to give his undivided efforts to solving a specific class of problems for the good of all. It might then become apparent that it would be an economy rather than expense to pay a worthwhile salary to a county health officer, to employ an examining physician who would make a periodic examination of every child and prescribe proper treatment, or even make possible the treatment at public expense if necessary to protect the health of the community. The traveling automobile clinic is yet to be adopted in rural districts.

Is the rural school teacher to work a miracle, and accomplish such a stupendous undertaking in addition to her prescribed duties? As a momentary digression, it might be suggested that much of the present routine work might as well be dispensed with, since it is fruitless. Perfunctory progress from the first to the last page of a text book written for city children may accomplish no worthy object except it be the cultivation of book-reading persistence. In the book that some of us still

revere we may read, "The letter killeth but the Spirit giveth life," and another expression of the same thought, "As a man *thinketh* in his heart so is he." Are the daily lessons such as will lead the pupils to think, in solving vital problems facing country people? Are not many precious hours wasted in wearisome performance of that which has little meaning or purpose? A "spelling book" of the old type is an atrocious thing, little short of a crime. But shall not a child learn to spell? Certainly, the words that he uses in letter writing, but not from stupid, stupefying lists of words. The "dictionary habit," added to the ability to spell a "minimal-essential" list of two thousand words, will make a spelling book unnecessary. How many of us can look back upon our childhood days and remember that because of its strange combination of letters which somehow would not keep properly adjusted in our plastic brains the word "catarrh" was assigned as a punishment, or otherwise, to be written "fifty" or "one hundred" times? It was written—mechanically, of course,—and possibly by the very monotony of repetition the letters and their proper sequence were finally impressed sufficiently to remain; but, while the process was going on, the young body, equally susceptible with the mind, was afflicted with a constant "cold"; there were frequent coughing, persistent irritation of the throat and nasal passages, which developed in later life into chronic "catarrh" whose spelling might have been learned if needed, almost incidentally if attention of children and parents had been directed to the condition instead of the word, and their understanding enlightened as to the disastrous effects and applicable means of prevention.

Schools a Factor in Welfare

Is it in any way possible so to conduct the rural school that it shall be a strong factor in the welfare and development of the community, physically as well as mentally? Some suggestion has been made as to what could and should be done, but how can it become certain that these services will not be dependent upon the wisdom and devotion of the individual teacher? How can modern science and the practical, helpful application of it be brought to the rural community? Here as elsewhere, real and lasting success can come only through concerted action, through effective cooperation. Isolated efforts are apt to be lost, and the good seed sown fails to develop through lack of care. The small district school with its one teacher, in one room, and under the direction of a school board composed of men usually of no educational experience and with little time to devote to their honorary office, cannot, or, at least does not, produce satisfactory results. The teacher, however competent and courageous, needs assistance and support. With the best of understanding and intentions the efforts of the individual teacher in the small school district must be inadequate.

The consolidated rural school seems to be the only solution of this highly important problem. The uniting of interests and combining of funds would make it possible to secure the supervisory service of a medical man whose approval would lend weight to the daily teaching as well as provide superior knowledge whenever it might be necessary. On the larger scale of building the school could be provided with proper sanitary conveniences which would fulfill the threefold purpose of safeguarding the health of the children during school hours, serving as a practical demonstration, and, not least important, "forming the habit" of correct living. Interest born of cooperation and strengthened by the prospect of attainment would bring about a more effective consideration of the local needs. The school should be made the community welfare service center for the practical enlightenment of adults as well as of the children. Where ignorance, stagnation, and disease existed in the isolated community, the consolidated school with its larger powers for adequate and sustained effort, could develop a general and concerted interest in the physical welfare of the people[1] which could not fail to result in greatly improved sanitary conditions in the homes and environs, and in the habits of personal carefulness, which would go far toward giving to country life the ideal healthfulness that it is supposed to possess.

[1]Rapeer. The Consolidated Rural School, Scribners.

OKLAHOMA CITY HEALTH SURVEY

Other American cities might take some suggestions from the public health survey of Oklahoma City, Okla. An analysis of the city budget, submitted in the report of the public health survey recently completed by the Oklahoma Tuberculosis Association, and reported by Murray P. Harwood, of the Massachusetts Institute of Technology, and Jules Schevitz, secretary of the Association, affords a description of conditions in municipal affairs that challenges the attention of officials and citizens.

The assertion is made by the Central Committee for the Oklahoma City Public Health Survey that the *per capita* appropriation for protecting the public health is only two-fifths of the minimum amount of money which should be appropriated for health work. The expenditures of the health and city chemist departments for the years 1915, 1916, and 1917 were, respectively, $0.21, $0.18, and $0.20, *per capita*, although it has been estimated by the American Public Health Association that adequate health protection for a community, under pre-war conditions, required an appropriation of about $0.50 *per capita*.

Oklahoma City does not have a full-time health officer. The authors recommend that the city reorganize its Health Department with a full time, well trained health officer as the chief executive of the new department. He should be appointed under civil service.

The plan provides for the establishment of a diagnostic laboratory and the appointment of a bacteriologist who will not only have charge of the laboratory, but will serve as assistant health officer.

The present city chemist would be retained in the same position and would conduct all chemical analyses in connection with the laboratory work of the health department.

The scheme of reorganization contemplates the revision of the sanitary and milk codes so that a model sanitary law will be put into effect, and enforced through the cooperation and aid of qualified citizens of the community. A thoroughly trained milk inspector would be employed under the supervision of the health officer.

The appointment would be made of three sanitary inspectors who would look after the conditions in food markets, stores, restaurants and lodging houses, and general housing. Protection against infection and contagious disease carriers with respect to the handling of foods in stores and restaurants is inadequate under the present inspection, according to the authors.

The survey brought out the need of a better record of vital statistics of Oklahoma City. When birth registration was checked up it was found that the death rate and birth rate are about one-half of the rates that prevailed in cities having more accurate statistics. Cases of

contagion and the diseases of children are poorly reported. It is urged that the model vital statistics law adopted by the state be made the guide in the reporting of vital statistics.

The extension of the facilities of municipal sanitation is urged for the improvement of sections where suitable

A row of beautiful homes, typical of Oklahoma City.

improvements have not been made. It is recommended that the supervision and regulation of housing facilities from the standpoint of health, comfort, and convenience of the people, shall be carried out by more frequent inspections and by education.

Of sewerage and sewage disposal the report states: "On the whole, the city is well sewered, although there are still certain sections where open privies abound. contains a fairly large amount of organic trade wastes which are particularly offensive during warm weather. No method of sewage treatment is employed."

Toilet facilities in use at one of the outlying schools of Oklahoma City. These privies are not properly protected against flies.

Oklahoma City lacks an adequate supply of water from the municipal reservoirs. The water works and system came into the possession of the city in 1900. The city has grown to the extent that a larger supply must be provided. To offset the deficiencies of the municipal water supply, a large proportion of the city's drinking water supply comes from wells operated by private corporations. The survey included these wells in the facilities for handling and distributing the water.

A chapter is devoted to anti-tuberculosis activities. In 1917 the death rate of 200.9 in 100,000 represented the mortality rate of all forms of tuberculosis among the black population as compared to 69.5 in 100,000 among the white population. The high mortality among the negroes is entirely out of proportion to the color distribution of the population. They make up 10.2 per cent of the city's population although they contribute about 25 per cent to the deaths of tuberculosis. The unusually high death rate among negroes from tuberculosis is attributed party to their peculiar racial susceptibility and partly to the poor conditions under which they live. An analysis of the possible contributory factors to the prevalence of tuberculosis in Oklahoma City does not lead to any definite conclusions.

Conditions under which the city's milk supply is obtained are described as follows:

"The milk supply of the city comes from a short distance. The milk in most cases is brought to the city twice a day. Forty-four dairies were scored, and of these 31 per cent scored less than 60 per cent. The distributing dairies and ice cream companies within the city were also inspected. Many one and two cow dairies

The type of drinking can used in all the public schools. Individual drinking cups are not provided, and many children drink directly from the faucets.

located in the city create a special problem. Those that handle milk and other foods are not required to undergo a thorough medical examination in order to determine whether they are free from disease."

Oklahoma City has resolutely looked her health facts in the face and a consistent health program is planned as the outcome.

A few "shacks" on South Robinson Avenue, where dangerous housing evils prevail. Unprotected garbage swarms with flies, and rubbish lies unremoved.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

INTERNATIONAL CLINICS. Edited by H. R. M. Landis, M.D., Philadelphia. Volume II, Thirteenth Series, 1920.[1]

The present volume contains many interesting papers. The article on tuberculosis of the bone and joint diseases by Ashhurst, and the paper on occlusion of the arteries of the limbs in diphtheria, by Thompson, are especially well written.

Two new departments have been added to this volume of International Clinics; one is the department of industrial medicine, and the other is the department of pediatrics. Both sections contain unusually good material and they demonstrate the growing importance of both phases of medical science, an importance that the editor was not slow to cite.

PRINCIPLES OF HUMAN PHYSIOLOGY. By Ernest H. Starling, C.M.G., F.R.S., M.D., Hon. Bc.D. (Cambridge and Dublin), F.R.C.P. Jodrell professor of physiology in University College, London.[2]

Professor Starling's book is rendered particularly valuable by his method of approach to the subject under discussion. He always describes the structure of the organ before he discusses its physiology. For instance, he starts with a full description of the structure of the voluntary muscle before he presents the general subject of the mechanism of movement. In the same way he gives a description of the structure of the nerve fibers before he enters upon a discussion of the physiology of the nervous system.

He follows the same methods in regard to the chemical structure of various reactions. The book thus becomes a cyclopedia of anatomical, physiological and chemical knowledge, showing the interrelation between these branches of medicine and their connection with the functions of the human organs.

The third edition includes many of the newer researches on physiology and also a valuable contribution on sense organs by H. Hartridge.

DIAGNOSTIC METHODS. Chemical, Bacteriological and Microscopical. A Text Book for Students and Practitioners. By Ralph W. Webster, M.D., Ph.D., assistant professor of pharmacological therapeutics and instructor in medicine in Rush Medical College, University of Chicago; director of Chicago Laboratory, clinical and analytical.[3]

The sixth edition of this standard book brings all the laboratory methods up to the last minute. It gives full descriptions of all clinical laboratory methods and in many cases also the interpretation of the findings. The bibliography is exceptionally complete. The volume can render inestimable service to both the clinician and the laboratory worker.

1. J. B. Lippincott Co., Philadelphia, 1920.
2. Lea & Febiger, Philadelphia, 1920.
3. P. Blakiston's Son & Co., Philadelphia, 1920.

THE USE OF COLLOIDS IN HEALTH AND DISEASE. By Alfred B. Searle. With Foreword by Sir Malcolm Morris, K.C.V.O.[4]

This book on colloids by Searle gives excellent and apparently comprehensive information of a fundamental nature concerning this subject. The portion which deals with the chemistry and physics of colloids is easily grasped by one who has had not more than the usual college course in chemistry. The style is clear and interesting and, as it is a small book, if one starts reading the book will not be put down until it is finished.

The subject is a most important one and the fundamentals, at least, should be known to every physician. Biological processes and metabolism are to a great extent those of colloidal substances. As these substances act in an entirely different manner from that of simpler substances the field of colloid chemistry is a very important one and deserves more time and investigation than has been given it in the past.

It is unfortunate that the chapter which deals with the therapeutic value of colloids does not maintain the high standard of the remainder of the book. The book as a whole, however, is worthy of very serious consideration.

THE INDIVIDUAL DELINQUENT. A Textbook of Diagnosis and Prognosis for all Concerned in Understanding Offenders. By William Healy, A.B., M.D., director of the Psychopathic Institute, Juvenile Court, Chicago; associate professor mental and nervous diseases, Chicago Polyclinic.[5]

The book of Dr. Healy is a most painstaking analysis of specific types of delinquents with the object of attaining a grouping or classification which will enable a practical handling of these types of offenders. The data tabulated cover the family history, development history, environment, mental and moral development, anthropometry, medical examination, particularly from a neurologic and psychiatric standpoint, psychological tests and analyses, delinquency, and diagnostic and prognostic summary.

Emotional complexes and rationalizations are regarded as more important than the nervous functions which have engaged most psychologists in this field.

He does not find poverty a very important factor in the causation of crime. Mental abnormalities and peculiarities were found in 455 of 823 classified offenders.

In 271 out of 668 cases he was able to eliminate hereditary criminalistic tendencies. In 152 cases of undoubted mental defect the inheritance of criminal tendency as such could not be proved from the facts. The intricacy of causation calls for the most painstaking study.

The case studies are minute and exhaustive. It is only through such methods that criminalistic genetics will evolve as an exact science.

4. E. P. Dutton & Co., New York, 1920.
5. Little, Brown & Co., Boston, 1918.

HEBE

—a wholesome, nutritious, economical food product for cooking, baking and hot beverages

Helps to Balance the Diet

THE great value of HEBE as a food lies in the perfect balance of its ingredients. HEBE is pure skimmed milk evaporated to double strength enriched with cocoanut fat. It supplies to the diet the proteins, carbohydrates and mineral salts of skimmed milk plus the heat and energy units of a highly refined vegetable fat.

Used as a cooking ingredient in the preparation of other foods, HEBE adds nutritive value, and helps to balance the diet. There is no other article just exactly like HEBE—it has its own special uses—serving as an auxiliary to the daily milk supply for cooking, baking and for use in hot beverages.

HEBE is prepared in modern condenseries under the most sanitary conditions. It is put up in hermetically sealed cans and sterilized. It is plainly labeled: "A Compound of Evaporated Skimmed Milk and Vegetable Fat." The label recommends HEBE for cooking and baking and in hot beverages, and specifically states that it is not to be used in place of milk for infant feeding. It is just as frankly advertised and sold.

Our booklets, "Today's Food Problem" and "HEBE—Its Dietetic and Economic Value," are of special interest to physicians, health officials, dietitians, public health and industrial nurses. Both will be sent free on request. Address 3022 Consumers Building, Chicago.

THE HEBE COMPANY

CHICAGO SEATTLE

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.

H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRIPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

22-24 East Ontario Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

Book Reviews

(Continued from page 706)

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Thirty-first Session, Held at the Chalfonte Hotel, Atlantic City, N. J., June 16, 17 and 18, 1919. Edited by Oscar M. Schloss.[6]

The Transactions contain all the scientific papers read before the American Pediatric Society during its annual convention in 1919, and a report of the business transacted at the meeting. It also contains a list of the presidents of the society and its members. The volume is well edited and well bound.

THE TREATMENT OF SYPHILIS. By H. Sheridan Baketel, A.M., M.D.[7]

This little volume really fills a long felt want. It is a laboratory manual for the man who treats syphilis. It is concise and readable, yet contains all the essentials of modern anti-luetic therapy. It gives concise instruction in technic, the various steps being illustrated by a series of excellent photographs.

Laboratory tests for diagnosis are taken up briefly. A chapter is devoted to the chemistry of anti-luetics, principally arsenic, which may be somewhat technical, yet it is only by having some conception of their complex chemical nature and instability that we can understand the necessity of exercising the most scrupulous care in their preparation and administration. Another valuable chapter is the one dealing with the reactions and accidents following the use of arsphenamine. Intraspinal administration is also treated rather thoroughly.

A MANUAL OF PHYSICAL DIAGNOSIS. Austin Flint, M.D., LL.D. Eighth edition, revised by Henry C. Thacher, M.S., M.D.[8]

Thacher states in the preface of this book that medical teachers are giving too much laboratory and too much technical instruction at the expense of those physical signs ascertainable by the senses. He further says that the students are asking for this. We agree that teachers are stressing too much the newer diagnostic methods, but it has been our experience that the students "eat up" a clinic in which the fingers, the eyes, and other senses are the only diagnostic means employed to demonstrate physical findings. That is the reason we believe this book should have a real place in the student's library; because the treatment of diagnosis is throughout sensibly considered, conclusions are well balanced, and the subject is presented in an ideal manner for a medical student. We are particularly pleased with the discussion on pulmonary tuberculosis and heart murmurs.

SIR WILLIAM OSLER, Bart. Brief Tributes to His Personality, Influence, and Public Service. Written by His Friends, Associates, and Former Pupils, in Honor of His Seventieth Birthday, and First Published in the Bulletin of the Johns Hopkins Hospital for July, 1919.[9]

This book has already been completely reviewed in another column of this journal when its contents first appeared in the *Bulletin of the Johns Hopkins Hospital* of July, 1919. To this review we will add the statement that the little volume should become a part of every physician's library. Personally, we believe that in later years this book will have all the value of a rare first edition.

6. American Pediatric Society, 1920.
7. The Macmillan Company, New York, 1920.
8. Lea & Febiger, Philadelphia and New York, 1920.
9. The Johns Hopkins Press, Baltimore, Md.

From the Frying Pan Into the Consulting Room

IT IS becoming increasingly manifest that improperly selected food, and improperly cooked food may be the specific causes of all sorts of under-oxydation disorders — such as nephritis, diabetes, rheumatism, blood pressure changes, indigestion, malnutrition and anemia.

Professor William H. Porter, in his new book, "Eating to Live Long," in discussing the question of what bad food does to good health, says:

"Animal fats have a low burning point. If used at a temperature that would adequately cook the meat, fish, or other food, they proclaim to the entire neighborhod just what the family is going to have for dinner—to say nothing of the fact that the meat being prepared is rendered almost indigestible by its protracted seance in the frying pan.

"If broiling is not practicable, it is possible, through the use of corn oil—or some oil capable of being heated to 600° or more before the burning point is reached—to greatly help in taking the teeth out of the frying pan, and at the same time serve to make the food more palatable and digestible."

Mazola is used now by more than seven million housewives in all cooking, baking, frying and sautéing—and also as a pure salad oil, quite as good, in the opinion of many connoisseurs, as the very finest imported Italian Olive Oil.

Suggest to your patients, Doctor, that they try Mazola while they are under your care, and see what a difference it will make in them.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City

MAZOLA IS SOLD BY ALL GROCERS EVERYWHERE

Solve Winter Diet Problems with

KING'S

PATENTED PROCESS

DEHYDRATED

FRUITS AND VEGETABLES

The perplexing problem of getting fresh fruits and vegetables in winter is solved by King's. Take spinach for instance—even at extravagant prices almost impossible to procure in winter.

King's spinach is exactly like the fresh,

with all the medicinal properties left intact. Already cleaned, needing simply to be refreshed in water and cooked in the ordinary manner. It fills a long-felt want in the diet kitchen of hospital and sanitarium, as well as in the patient's home.

We want you to test out thoroughly the dietetic value of all of King's products, and therefore, invite you to fill out the coupon below.

King's Food Products Co.

Portland, Oregon

- - - - Free Sample Coupon - - - -

King's Food Products Co.,
17 Fourth St., Portland, Oregon.
Please send me samples and prices of special Hospital Pack of your various products, as checked below. I will endeavor to give them fair tests.

King's Apples	King's Peaches
King's Cherries	King's Soup Vegetables
King's Loganberries	King's Stringless Beans
King's Prunes	King's Spinach
King's Pears	King's Squash
King's Apricots	King's Potatoes

Name .....

Institution .....

Address .....

Buyer's Name .....

Chicago Club Open to Visiting Nurses

The Chicago Nurses Club has a beautifully furnished club room overlooking the lake. The room will be available for nurses' meetings and conferences. Out of town nurses are urged to visit the club when in Chicago.

Central Council Moves Offices

The Central Council for Nursing Education and the Central Branch Office of the National Organization for Public Health Nursing have moved to the fifteenth floor of the Lake View Building, 116 South Michigan avenue, Chicago. They will share offices with the Chicago Nurses Directory and the Chicago Nurses Club.

MASSACHUSETTS UNITES SANATORIUMS

The state tuberculosis sanatoriums of Massachusetts, which were formerly under the supervision of the Board of Trustees of Massachusetts Hospitals for Consumptives, have been placed under the Department of Public Health, forming a new Division of Sanatoriums. Dr. William J. Gallivan has been appointed director of this division.

CHICAGO SCHOOL FOR SAFETY SUPERVISORS

The Safety Council of the Chicago Association of Commerce, operating in conjunction with the National Safety Council, is holding on alternate Tuesday evenings, commencing September 14 and concluding on March 29, 1921, a school for safety supervisor designed to give practical, readily understood instruction in "safety with a minimum expenditure of time and effort." Safety is fundamentally a humanitarian work of conserving life and limb, but it has a tremendous economic value as well and it is hoped, says the Chicago Council, through this school to send out men who will become leaders in safety.

CHILD SUICIDE INCREASING

Suicide is generally on the increase in the United States, and especially among women and children there is an alarmingly larger number who have ended their lives, says the *American School Board Journal* in commenting on data accumulated by the Save-a-Life League. During the first six months of 1919 the League received reports of 2,063 suicides throughout the country; this year for the corresponding period the number of those who have destroyed themselves is 2,771. Male suicides were 1,810 and female 961. In 1919 there were 385 suicides in New York during the first six months. This year the total is 343—234 men and 109 women. Of this number, nearly two-thirds were between the ages of twenty-five and fifty, and twelve were under twenty-one. Quoting the report, the comment runs:

Nothing should cause more real alarm than the suicide of children. In our own country, with its boasted institutions for human betterment, during the last six months 88 boys and 137 girls committed suicide, an increase of 50 over last year's report for the same time. The average age of boys is sixteen and girls fifteen. Boys most frequently use a gun and girls take poison. These terrible facts urgently call for strictly enforced laws to suppress the sale of all poisons and firearms.

There is a noticeable increase of suicide among women, doubtless due to the fact that women today are entering upon public life as never before, both in business and in politics. Not long ago about one-fourth of all suicides were women; now it is one-third.

Many people begrudge the Time the right kind of Sleep requires

THE day's work is pressing. Every man has about twice as much on hand as he ought to be asked to do.

Few people sleep long enough, or soundly enough. Many begrudge the time the right kind of sleep requires. Others who do get their full night's sleep fail to be benefited by it. They do not properly relax. Their bed squeaks and rattles. They devote the proper length of time to sleep but, somehow, they are restless, disturbed, sleepless—

As a result, they start the day only half rested, are inefficient and dissatisfied with their work and accomplish little. "Sleep" to them becomes "almost a waste of time."

Nobody can sleep deeply and be fully benefited by their sleep unless he or she is completely relaxed—unless the bed *invites* sleep instead of repelling it.

No bed that rattles and squeaks with every turn of the sleeper can be expected to make "sleep" anything else but "a waste of time."

For over forty years Simmons Company has been making beds and springs that *invite* sleep—

Beds that stand true and staunch; that lock firm at the corners, each part rigid, secure and in perfect alignment; beds that are noiseless, comfortable, sanitary, serviceable, and enduring.

Simmons Beds, "*Built for Sleep*" cost no more than perfect beds ought to cost—no more than anybody who values comfort and health will be fully prepared to pay.

The quiet elegance, simplicity and refinement of their design, their superior construction and the certainty with which they encourage sleep, make them essential to the health, comfort and efficiency of the people.

Special Data and descriptive booklets of Simmons Beds for Hospitals, Schools and Outdoor Recreation Camps, will be mailed promptly on request.

SIMMONS COMPANY

WAREHOUSES IN ALL PRINCIPAL CITIES

CHICAGO DISPLAY ROOMS
1347 S. MICHIGAN AVENUE

NEW YORK DISPLAY ROOMS
6 E. THIRTY NINTH STREET

EXECUTIVE OFFICES—KENOSHA, WISCONSIN

Purity—
Your Security!

Flavoring extracts of known quality are regarded with high favor by experienced dietitians.

Such flavoring adds zest to the food and drink of the sick and convalescent, so that nourishment and assimilation are given added benefit through palatability.

Flavored with

SAUER'S

THE NATIONAL EXTRACT

VANILLA AND 32 OTHER FLAVORS

At all Grocers

THE LARGEST SELLING BRAND IN THE U.S

Since 1887 flavoring the food of millions.

The choicest materials, blended with the greatest care, prepared in glass lined tanks and filled by vacuum into sterilized bottles. There is the assurance of Purity—Your Security.

Ask for Price List.

The C. F. Sauer Company

Richmond, Virginia

PUBLIC HEALTH LAW IN COSTA RICA

A new public health law has been adopted in Costa Rica, placing all public health matters in charge of the national government, which will exert its powers through the local authorities. A superior board of health will administer the law, which deals specifically with the various public health subjects.

VITAL STATISTICS IN SPAIN

The *Siglo médico* states that 306,394 boys were born in Spain during 1919, and 278,958 girl babies, to a population of 20,355,986. Over 842,000 deaths were recorded, including 163,198 children under five. Typhoid was responsible for 5,677 deaths; typhus for 228; tuberculosis for 29,700; cancer for 12,525; heart disease for 37,883; acute bronchitis for 22,166; chronic bronchitis for 11,705; suicide for 847, and other forms of violence for 6,909.

A DIMINISHING PROFESSION

The American Red Cross sees in the widening disparity between the increase of our population and the decrease in the number of graduates from medical institutions an added reason for promoting general training in first aid and accident prevention.

The present standard of pre-medical education has lengthened the time and increased the cost of medical training, thus curtailing to a large extent the yearly attendance at the medical colleges. In 1904 there were 28,142 students attending the various medical colleges of the United States, this being the largest number in any year during the period 1880-1919. The total number of medical students in the schools for the year ending June, 1919, excluding pre-medical, special and post-graduate students, was 13,052. There was a decrease in 1919 of 578 below that of 1918.

The high standard of efficiency established through the reclassification of medical colleges has caused the closing of many of the smaller and more poorly equipped ones. In 1906 there were 162 medical colleges in the United States; in 1919 there were only eighty-five recognized medical colleges. In 1903 there were 5,698 graduates from all medical colleges, one graduate for every 14,020 of population. This number has gradually declined, in spite of the increase in population, until, in 1919, there were only 2,656 graduates, a decrease of fourteen below that of 1918—one graduate for each 40,230 people.

The longer hours and smaller remuneration of country practice have caused many physicians to move from the rural districts to the larger towns, where conditions are less difficult and remuneration greater. Many practitioners, desiring to specialize also, are attracted to the cities from the rural districts.

That the high standard of medical education must be maintained goes without saying, if we are to render efficient service to those suffering with disease. Nevertheless, the shortage of practitioners has caused increased suffering in certain localities which is very severely felt. Those who reside in the sparsely settled areas are left to the care of untrained assistance, and serious illness or loss of life often results.

Universal first aid training would supplement the work of the physicians, and take from them the burden of caring for unimportant injuries. It would release their services for more serious cases, and would also place the victims of accidents in the physician's hands in the best possible condition for future recovery.

LISTERS PREPARED CASEIN DIABETIC FLOUR

for DIABETES

ABSOLUTELY STARCHLESS and SUGARLESS

ANALYSIS

Moisture	10.66
Ash	1.63
Fat	0.67
Protein	69.95
STARCH	0.00
SUGAR	0.00
Leavening and Flavoring	17.09

LISTERS Diabetic Flour is made by our own original, exclusive process. Blended of specially prepared caseins; contains no purins; entirely free from starches and sugars. About 95% is assimilated and 90% goes into energy.

SELF-RISING—Extraordinarily versatile. Easily made into strictly non-carbohydrate Diabetic Bread, Cookies, Muffins, Biscuits, Noodles, Pancakes, Dumplings, French Toast, etc. —delectable to both the eye and the palate; nourishing; healthful; and of very great value in breaking up the depressing monotony of the usual Diabetic diet.

Packed in small, carefully measured boxes

—each containing just enough flour to make one loaf of Diabetic Bread—the right amount per day for the average patient. In this respect, alone, of wonderful assistance to both physician and patient in the strict regulation of the Diabetic diet.

A Month's supply—30 boxes $4.85
Fifteen Days' supply—15 boxes 2.75

Will be sent direct to the physician or to his patient. Or write to us for name of our Agent in your locality

LISTER BROS., Inc.

405 Lexington Avenue, New York City

"L-F"
Model 530

COOLIDGE
X-Ray Unit

0-30 Milliamperes
3-5-in. Spark Gap

Automatic Time Switch
Magnetically Controlled Exposure Switch

Here's the equipment for the physician or moderate-sized hospital. Just what is needed for the large hospital—can do all the radiographic work, leaving the larger equipment free for therapeutic work.

Mail the Coupon Today

The Liebel-Flarsheim Co.

410-416 Home Street

Cincinnati, O.

LIEBEL-FLARSHEIM CO.
Cincinnati, O.
Send us, without obligation, further information on Model 530 X-Ray unit. We have ..... volts direct current; ..... volts alternating current, ... cycles

Electrically Lighted Surgical Instruments

Twenty years in the manufacture of electrically lighted surgical instruments, if it has not brought perfection in instrument construction, at least has kept the Electro Surgical Instrument Company abreast of the advances made by leading specialists of the medical and surgical profession.

So it is that instruments stamped "E. S. I. Co." speak of the accomplishments of the noted men whose suggestions are embodied in their construction and a service of maintenance possible only in instruments of our manufacture.

Users of instruments stamped "E. S. I. Co." are certain sharers in this service.

Origination begets imitation. Be sure of our exact name.

Illustrated Catalogue Sent Upon Request

ELECTRO SURGICAL INSTRUMENT COMPANY

Rochester, N. Y.

CANADIAN TUBERCULOSIS CONSULTANTS

The Board of Tuberculosis Consultants appointed by the Department of Soldier Civil Re-Establishment for Canada are. Charles D. Parfitt, M.B., Gravenhurst; J. R. Byers, M.B., Quebec; W. M. Hart, M.B., Saskatchewan; A. F. Millar, M.B., Nova Scotia; and N. A. Stewart, M.B., Manitoba.

REPORTED CURE OF LEPROSY

The newspapers made a good story of the reported cure of two patients from the leper colony at Penikese, Mass. An inquiry elicited the information from Bernard W. Carey, M.D., director, Division of Communicable Diseases, that the men in question have exhibited a remarkable improvement and show no external evidences of the disease. While in the opinion of the Board these men are progressing toward a complete cure, and are not now a menace to public health, they have been returned to the island until all laboratory and blood tests remain negative.

TRAINING HEALTH OFFICERS IN GERMANY

The plan for training health officers will soon be realized in Germany, says the *Deutsche Medizinische Wochenschrift*. Social hygiene academies have been organized at Breslau, Berlin, and Dusseldorf and four months courses are to open with the winter term to train district and communal physicians, medical inspectors of schools, and in medical prophylaxis work in general. The various branches of study include social hygiene on the basis of social economics, medical statistics, and social pedagogics; social pathology; care of the healthy and care of the sick, embracing prevention and stamping out of epidemics; social legislation, insurance medicine, and medical ethics. The instruction will be on the plan of graduate schools with the main stress on practical training. Physicians who wish to compete for positions as *kreisärzte* will find facilities for a course in bacteriology and hygiene; jurisprudence, and legal psychiatry. Certificates from these academies will entitle to precedence among applicants for positions as health officers, city physicians, and medical inspectors of schools.

AN ALL AMERICAN HEALTH CONFERENCE

The first of a series of regional health conferences authorized by the International Health Conference in Cannes is to be held in Washington, December 6-13. It will be devoted to a consideration of venereal diseases which, according to conservative estimates, constitute one of the world's most terrible plagues.

The conference is being organized under the joint auspices of the United States Interdepartmental Social Hygiene Board, the United States Public Health Service, the American Red Cross and the American Social Hygiene Association. Prof. William H. Welch of Johns Hopkins Hospital has consented to serve as president, and already assurances have been received that some of the foremost physicians and sociologists will participate. Prominent health officers and sociologists from all parts of North and South America will attend.

The conference will review past experiences and existing knowledge as to the causes, treatment and prevention of venereal diseases, and will formulate recommendations relating to a practicable three-year program for each of the North and South American countries participating. In addition it will make suggestions for putting such programs into effect.

The Efficiency of Our Employees

Is Reflected in

The Efficiency of Our Product

Scientific apparatus represents more than a combination of material and labor. The interested, efficient, and intelligent cooperation of the workers is needed to produce efficient apparatus.

We have secured such cooperation.

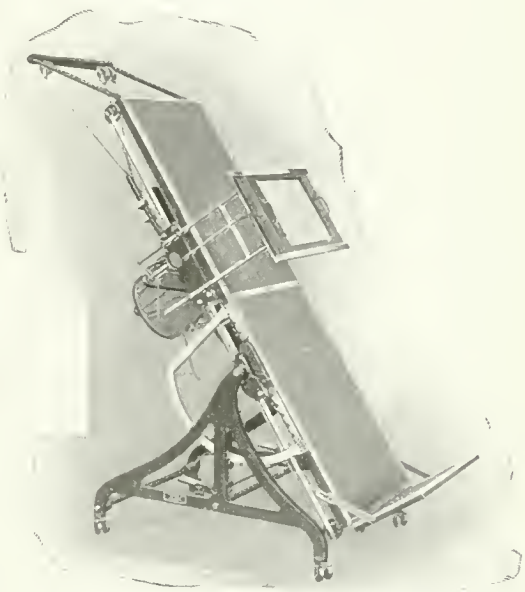
We pay a bonus on production—we penalize defective workmanship.

The man who will not earn a bonus is not wanted. Every employee is an efficiency engineer.

With such support from our organization, the production of QUALITY apparatus is a natural sequence.

Let us tell you about the QUALITY in

Meyer Transformers
Meyer Multoscope
Meyer Klinoscope
Meyer Duplex Stereoscope



THE WM. MEYER COMPANY, 1648 N. Girard St., Chicago

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

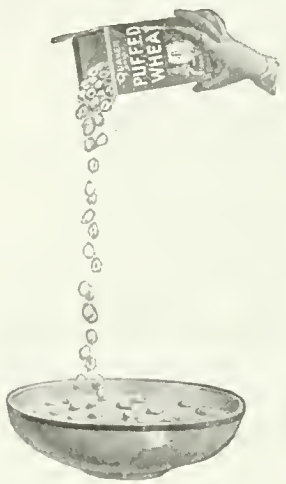
GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment. Literature and samples from

RIEDEL & CO.
87 Thirty-fifth St.
Broklyn, N. Y.

100 Million Explosions

In a Grain of Wheat



Puffed Wheat is whole wheat steam exploded. The grains are sealed in guns. After an hour of fearful heat the guns are shot. And over 100 million steam explosions are caused in every kernel.

The process was invented by Prof. A. P. Anderson, to make whole grains wholly digestible, and easy to digest.

Puffed Rice is whole rice puffed in like way. Corn Puffs are corn hearts puffed.

These bubble grains, flimsy and nut-like, form most delicious foods. And they are the best-cooked cereals in existence.

Puffed Wheat
Puffed Rice
Corn Puffs

COLORADO HEALTH COURSE

The University of Colorado School of Medicine announces a four months course in public health nursing—September 20, 1920, to January 8, 1921—to be conducted under the auspices of the University at the Minnequa Steel Works and Hospitals. The field work in mining camps and in Pueblo provides facilities for industrial nursing and social service among the thousands of workers and their families.

RISKS INVOLVED IN KITCHEN REGIME

The possibilities of food infection by a carrier have received further emphasis in the report of Dr. Joseph Priestly, medical officer at Lambeth (England) on an outbreak affecting ten persons who had partaken of food prepared by a woman who, though ill of the same disease that later affected all the members of the household, continued to prepare their food. The food itself was sound, but bacilli of the large paratyphoid B group were carried in the gravy and were found present in the organs of the deceased and in the blood of those who survived. In the case followed by death, verdict was brought in that death was caused by "gastro-enteritis by food-poisoning misadventure." Heretofore rigid proof had not been found that the Gaertner group of infections, the cause of food poisoning outbreaks, are of human origin, the food being infected with pathogenic Gaertner bacilli from a human source, either from an actual case of paratyphoid fever or a carrier case. The subject has been ably summarized by Dr. William B. Savage in his recent volume on "Food Poisoning and Food Infection."

RACIAL PROBLEMS AND MODERN CRUSADES

The real welfare of a race is represented by a combination of factors not too well understood even by those who are attempting to apply correctives, says Robert B. Wild, in *The Lancet* of July 3, 1920, in an evaluation of some modern health crusades. Without making any attack upon these crusades, he suggests that it is important to consider their racial as well as their individual effects. It is well in the long run, he says, to concentrate effort upon those diseases which destroy the individual in early adolescence rather than the diseases which remove men when their powers are on the wane. It would, for instance, have more value to be able to eliminate tomorrow the tubercle bacillus, a disease which exacts a high toll among the young, than to control cancer, a disease of later middle life, or arteriosclerosis, the control of which permit greater numbers to go on through a slow process of senile decay.

Venereal disease, affecting, general speaking, those individuals whose passions are strongest and moral control weakest, takes its toll from those of the race who leave fewer offspring and these less likely to reach a healthy maturity.

Dr. Wild does not look for much gain from the cultivation of eugenics, but considers that probably our present methods of sexual selection give as good results as would be obtained by a more conscious and deliberate method.

The matter of drug addiction is more complex and needs to be the subject of special study and concentrated toward control, but in all of the problems which face the medical profession at the time he urges the necessity for taking a broad and unsentimental view of the issues. If in the future the work of the medical man is to be held more preventive than curative he will have to think more of the community and of the race than he has done in the past without thinking less of the individual.

Clinx X-Ray Plant

Send coupon for catalog giving complete description.

Name .
Street . . .
City . . . . . .
State . . . .
M.M.

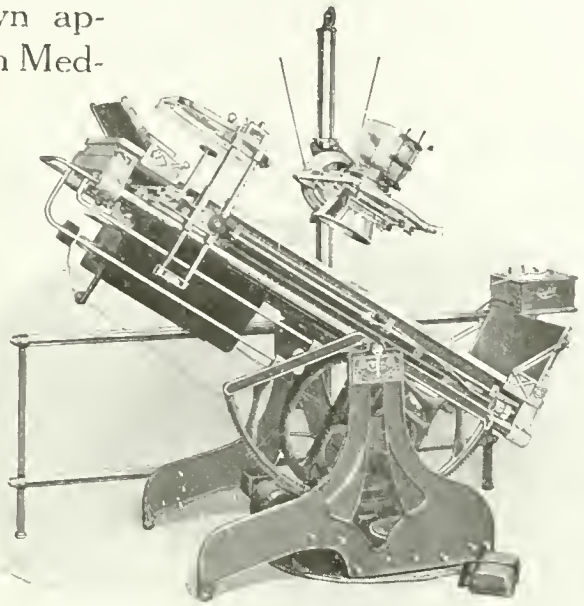
For every known application of x-ray in Medicine and Surgery.

Perfectly balanced.
Motor driven.

Self Excited .0 to 30 Milliamperes .3 to 5 Inch Gap.

Transformer and Control Attached to and Form Part of Table. No Overhead Trolley.

Essential to and within the means of every Physician and Surgeon.



U. S. Patents: Dec. 19, 1911; April 22, 1913; Feb. 29, 1916; Aug. 7, 1917. Also patented in foreign countries.

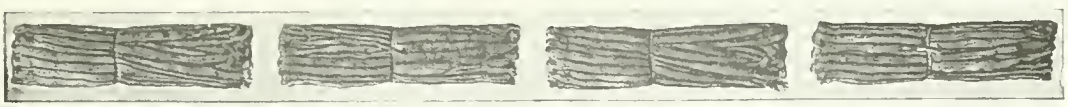
Instant and complete diagnosis by fluoroscope and film.

At Your Finger Tips in Your Own Office.

Any Angle. Stereoscopic.

No Transferring of Patients from One Piece of Apparatus to Another.

THE Campbell ELECTRIC CO. LYNN, MASS



Ariston Flavoring Extracts

Test higher in purity and strength than is required by the Pure Food laws. They are made in a fully equipped laboratory by thorough and careful methods.

Only the finest quality of vanilla beans, bunches of which are shown in the upper part of this border, is used in making Ariston Vanilla Extract. They are chopped fine, put into barrels, where they remain in maceration for many months, to allow the alcohol to extract the essence, which becomes rich and mellow in character, with a delicate flavor. It is then drawn off and drips through the percolators ready for bottling.

One Corner of Our Extract Laboratory.

Besides Vanilla, we make all flavors, including Vanilla-Tonka, Orange, Almond, Lemon, Peppermint, Wintergreen, Clover, Celery, Nutmeg, Sassafras, Anise, Onion, and others.

You can rely on our extracts as being pure and wholesome and the best that can be produced.

CALUMET TEA & COFFEE COMPANY

409-411 W. HURON ST. CHICAGO

"DEALERS DIRECT WITH YOU"

DIPHTHERIA ANTITOXIN

Shown by Tests to Cause Least Reaction

In a series of comparative tests conducted by the John McCormick Institute for Infectious Diseases, covering 370 cases and extending over a period of 2½ years, our product—which is manufactured under the personal supervision of P. G. Heineman—gave only 3% of slight and moderate (but no severe) serum reactions.

"Since the antitoxin has been administered in a solution of almost pure globulin prepared by Heineman's method, the occurrence of serum reactions has markedly fallen, not only in frequency but also in severity." (Medical Report of the Durand Hospital of the John McCormick Institute for Infectious Diseases—March 12, 1913 to March 12, 1918.)

Our laboratories are producing this high grade concentrated serum in sufficient quantities to ensure immediate delivery of your season's requirements.

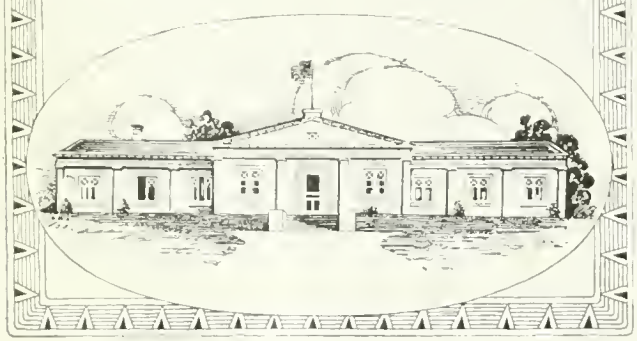
Furnished in syringes and vials containing the standard prophylactic and therapeutic doses of from 1,000 to 20,000 units.

United States Standard Products Co.

Gov't License No. 65

Laboratories
Woodworth, Wis.

General Office
111 W. Monroe St.
Chicago



TROPICAL DISEASE INSTITUTE PLANNED

An effort is being made to bring about the establishment in Panama of an international institute for research on tropical diseases as a memorial to the late Major General William C. Gorgas, Surgeon General, United States Army. Panama has been chosen as a location in view of the fact that the most noteworthy health research work of General Gorgas was accomplished there. The Panama government will, it is said, donate the million dollar St. Thomas Hospital for the proposed institute, and it is hoped that the Rockefeller Foundation, which did so much to rid Panama of hookworm, will cooperate in this enterprise.

PROVISION OF MEDICAL TREATMENT

The primary necessity in getting effective improvement in medical service is public enlightenment, states Dr. A. H. Bygott, in *The Lancet* of August 14, 1920. The people would be much more likely to seek assistance early if educated in the knowledge of the incidence of disease so that a doctor would be consulted when certain signs, which may lead to serious consequences, first appear.

The chief emphasis of Dr. Bygott's argument is placed upon the provisions of convenient consultation rooms with proper equipment for adequate examinations. The hospital is regarded too little as the center of the medical life of the community, he says, and hospital records do not supply the exact and reliable information they should regarding the incidence and methods of dealing with disease. It would be reasonable to require, he says, that each hospital should publish "statistics of the nature of the work done, so that the public may know how it fulfills its function as the main source of supply of the highest forms of medical service in the locality."

A long waiting list should be a disgrace, he adds, and in such cases precedence is not always assured to the urgent case.

Remedies are suggested in the staffing of hospitals, in the training of men, and in making available for public benefit the best skill of the surgeon in the interval before he becomes subject to the overpressure that makes for an irregularity which interferes with the patient and is not conducive to just class work. When senior surgeons must see their patients hurriedly and lack the leisure for comparing their work with others, their work might well be supplemented by help from the staff of a teaching hospital.

An interesting and successful experiment enthusiastically favored by the British Medical Association in West Suffolk is reported of sending out a distinguished consulting surgeon for local services. A double purpose could be served by choosing such consultants from the staff of teaching hospitals. This local consultation service is available to those who cannot travel and would equalize the work by preventing the overcrowding of institutions in large centers by consultative cases from distant districts.

A survey of all the hospitals would enable a strengthening of the staffs of the lesser hospitals, adequate service in rural and industrial districts, of visiting specialists, and a distribution of service according to need. The social clinical man should have the advantage of serving on the hospital staff so as to centralize all service and standards everywhere raised by providing a central information bureau in a consultative capacity on matters of plans, organizations and personnel.

The nutrient value of VIROL illustrated in a number of cases, particulars of which have been supplied by medical men.

After being fed on VIROL regularly for five months he is a fine, strong, healthy boy. The Doctor says:—"I have pleasure in confirming the statement of the wonderful improvement made by this child after feeding on VIROL. I feared his case was hopeless."

Maurice Pickering was suffering from blood poisoning. His lungs were also affected. He wasted worse than he appears in above photograph.

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

Virol is a valuable food for invalids and children. It is a preparation composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars:
50c, $1.00 and $2.00

CONCENTRATED FOOD—A well-known medical man writes as follows: "I have never prescribed a better tissue builder than VIROL and I have been in active general practice for over forty years."

The fat in VIROL is so minutely divided that it is more readily absorbed than milk.

Virol

Used in more than 2,000 hospitals, sanatoria, and infant clinics in Great Britain

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

MERCK & CO. NEW YORK · CHEMICAL WORKS, RAHWAY, N.J. · MERCK

On Prescriptions—
Merck's

Anusol
HEMORRHOIDAL
Suppositories

Let us say that in a case of Hemorrhoids an operation has been unavoidable

And it has been performed skillfully and with success.

Does it safeguard from recurrence?

Anusol Suppositories—used promptly on reappearance of symptoms and at regular intervals thereafter—are approved prophylactics.

Sample on request

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX
WHITE, RED AND BLACK LABEL
AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

TUBERCULOSIS RATE IN SASKATCHEWAN

Tuberculosis continues to claim lives in Saskatchewan at an increasing rate. In 1914 the death rate was 35.2 per 100,000; in 1915, 38.2; in 1916, 44.6; 1917, 47.4; 1918, 54.5; making the average for the five-year period, 45. The average for measles was 6.2; whooping cough, 8.2; diphtheria, 8.2; typhoid, 8.8.

HEALTH PROBE OF SCHOOL CHILDREN

An appeal to parents to support the White William Foundation in its efforts to secure better physical efficiency among the school children of Philadelphia is urged by Dr. Edwin B. Twitmeyer, psychologist to the University of Pennsylvania. From 10 to 15 per cent more of the school children, he says, would be promoted if they had an examination before entering school in September. The school nurses' report for the year ending June 30 showed that 5,911 cases of badly diseased tonsils were discovered during the year by medical examiners.

POST-GRADUATE LECTURES IN OHIO

The Committee on Medical Education of the Ohio State Association for some years, in a series of group meetings throughout the state, has conducted lectures designed to bring to the medical men of the state the newest developments in medicine. Announcement is made in the September issue of the *Ohio State Medical Journal* that Dr. Henry John Gerstenberger, professor of pediatrics, Western Reserve University, is this season's lecturer. Every year a larger number of physicians who find it impossible to leave their practices for further study avail themselves of this opportunity to keep themselves *en rapport* with current medical thought. The work is twofold, one section dealing with the fundamentals of pediatrics, the other with the newer developments of practical importance to the family physician. The topics cover thoroughly the specialty from the standpoint of prevention, diagnosis, and treatment.

LABOR FEDERATION APPROVES HEALTH INSURANCE

The New York State Federation of Labor has approved the principle of health insurance in the following resolutions, adopted by the Executive Council under date of May 14, 1920:

Whereas, The long-neglected sickness problem of the wage earners is now receiving marked attention in the various states as a result of the agitation for workmen's health insurance legislation, and

Whereas, The facts gathered by official commissions, as well as recommendations following their impartial studies, have been in the majority of instances overwhelmingly in favor of this legislation, and more than fifty state and national trade union organizations in the United States have endorsed it, and

Whereas, Continued discussion of the subject, preparatory to the enactment of health insurance laws, has already disclosed to public attention and condemnation selfish opposition of commercial and insurance interests which have long opposed adequate workmen's accident compensation and sickness insurance laws, be it

RESOLVED, That the Executive Council of the New York State Federation of Labor redouble its efforts in support of health insurance legislation in conformity with the recommendations of its annual conventions, and invite the cooperation of other organizations in thus promoting the health of the people.

Digitan (Digipuratum)

Physiologically Standardized Digitannoids

This product, first introduced as Digipuratum is manufactured under license from the Federal Trade Commission and carefully standardized according to the original tests

RAPID AND RELIABLE IN ACTION

Powder and Tablets, 1½ Grains Each

1 tablet or 1½ grains powder equal to 1½ grains of strongly active digitalis leaves (= 8 frog units)

UNIFORM IN STRENGTH

MERCK & CO.
NEW YORK and ST. LOUIS, MO.

Ever Ready Local Anaesthetic "KELENE"

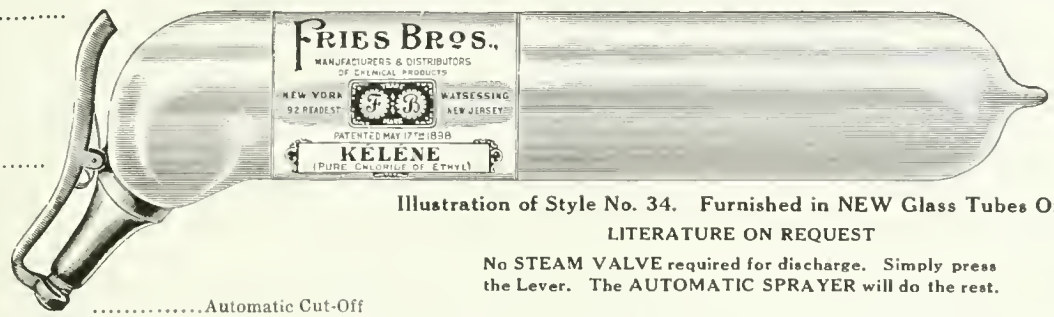


Illustration of Style No. 34. Furnished in NEW Glass Tubes Only

LITERATURE ON REQUEST

No STEAM VALVE required for discharge. Simply press the Lever. The AUTOMATIC SPRAYER will do the rest.

Sole Distributors for the United States and Canada - MERCK & CO. - New York Montreal St. Louis

MEAD JOHNSON & CO. MEAD'S D-M DEXTRI-MALTOSE EVANSVILLE, IND.

Infant Feeding *Diet Materials*

Our Reputation Is In Your Hands

THERE ARE THOSE THAT KNOW AND
THOSE THAT ARE WILLING TO KNOW
WHAT MEAD'S DEXTRI-MALTOSE, COW'S MILK AND
WATER WILL DO FOR THEIR INFANT FEEDING CASES

Perhaps You Too Would Like to Have Us Send You This Literature:

"Prescription Blanks" (1)—"Slide Feeding Scale" (2)—"Key for Modifying Cow's Milk" (3)—"Very Young Infants" (4)—"Diets for Older Children" (5)—"Food Salts in Infant Feeding" (6)—"Instructions for Expectant Mothers" (7)—"Diets for Nursing Mothers" (8)

YOUR CONFIDENCE IN US IS NEVER MISPLACED

MEAD JOHNSON & CO.

EVANSVILLE, IND. U.S.A.

THE MEAD JOHNSON POLICY

MEAD'S DEXTRI-MALTOSE IS ADVERTISED ONLY TO THE MEDICAL PROFESSION. NO FEEDING DIRECTIONS ACCOMPANY TRADE PACKAGES. INFORMATION REGARDING ITS USE REACHES THE MOTHER ONLY BY WRITTEN INSTRUCTIONS FROM HER DOCTOR ON HIS OWN PRIVATE PRESCRIPTION BLANK.

Notice

SHERMAN'S VACCINES

Are now supplied in a new 10 mil. (C. C.) container

This package has many superior features which assure asepsis, prevent leakage and faciliate the removal of contents. It is constructed on the well known Sherman principle.

10 Mil. (c.c.)

Twenty Preparations.

Beyond the experimental stage.

Millions of doses have been administered.

The vial is amply strong which prevents breakage so frequent with shell vials.

We are exclusive and pioneer producers of Bacterial Vaccines. Originators of the aseptic bulk package. Pioneer in elucidation, experimentation and clinical demonstration.

The largest producers of Stock and Autogenous Bacterial Vaccines.

MANUFACTURER OF BACTERIAL VACCINES
G. H. SHERMAN, M.D.
Detroit, Mich. U.S.A.

"Sherman's Vaccines are dependable Antigens."

INTERNATIONAL TUBERCULOSIS CONFERENCE

The National Tuberculosis Association has announced from its headquarters at 381 Fourth Avenue, New York City, an International Conference on Tuberculosis held in Paris the week of October 7, 1920. The last International Conference on Tuberculosis was held in Rome in 1912. Leon Bourgeois, president of the Council of the League of Nations, presided.

NORTH CAROLINA LEADS SOUTH

During the year from June, 1919, to July, 1920, 5,505 women and girls completed courses in home hygiene and care of the sick given by the Southern Division of the American Red Cross. In this work North Carolina led with 736 students taking the full course, and 581 taking the modified course. Tennessee came next with 567 taking the complete course and 309 the modified course.

MISSISSIPPI VALLEY ASSOCIATION OFFICERS

The Mississippi Valley Conference on Tuberculosis held at Duluth September 2-4, 1920, was attended by 335 workers. The following officers were elected: Walter McNab Miller, M.D., St. Louis, president; E. B. Pierce, M.D., Howell, Mich., vice-president; and Mr. Harry Roulfs, Columbus, O., secretary-treasurer. The meeting place selected for the next conference is Cedar Point, O., near Sandusky.

NEUROPSYCHIATRIC ASSOCIATION ORGANIZED

The Ontario Neuropsychiatric Association has been organized with the following officers: Dr. Edward Ryan, Kingston, president; Dr. Harry Clare, Toronto, vice-president; Dr. C. Crawford Whitby, secretary-treasurer. The work of the Association will extend to the study of defective children, social welfare work, care in the selection of immigrants, the problems relating to the feebleminded, psychoses, and neuropsychoses.

CITY EMBARKS IN MILK BUSINESS

The city of Jamestown, N. Y., has voted an appropriation of $150,000 for the erection of a milk plant, the installation of a pasteurizing process, the buying of milk from producers, and the organizing of milk routes through the city by the municipality. This is an innovation in municipal enterprises and carries the indorsement of the Board of Health, the common councils and practically all of the physicians of the city. The plant will be under the sole direction of a commission appointed by the mayor.

ASKS AID FOR TYPHUS

Unless effective steps are immediately taken, the plague of typhus will be far more deadly in the winter of 1920-21 than it was in the winter of 1919-20, says Arthur Balfour in a letter appealing for $1,250,000 out of $150,000,000 needed to deal with the growing menace in Poland and eastern Europe. In reporting his appeal the *New York Times* quotes Mr. Balfour as addressing "all members of the family of nations" through the Council of the League of Nations. The epidemic in Poland and Galicia, he states, is becoming an international danger, and the recent military events have made more urgent the need of money to cope with it.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2 November, 1920 Number 11

WHO SPEAKS FOR THE MEDICAL PROFESSION?

THE increasing confusion of leadership in the relation of the medical profession to the public should afford occasion for serious thought to the farsighted members of the profession at this time, when the state legislatures are about to convene. Who speaks for the medical profession? The question arises every time a bill affecting physicians appears in a legislature. The regular medical societies should be expected to be the voice of the profession on such occasions with full allowance for those who have individual views to present. Legislators and the public have a sympathetic ear for the voice of the real leaders of medicine, whether speaking as individuals or as the representatives of the regular medical societies. Such spokesmen secure results in legislative matters and promote public confidence in the medical profession.

Confusion arises when medical men appear representing medical societies which are formed for the immediate occasion, or which represent commercial elements within or without the profession. The public cannot readily distinguish between such representatives and the real representatives of medicine. Associations with high sounding names are not easily distinguishable by the laymen from the time honored professional organizations which have upheld the ideals of the profession for years. The result is that undue attention is ofttimes paid by legislatures to blatant representatives of quackery and commercialism in medicine. There lies before the writer at this moment a document which, from the title and name of the organization, would appear to a legislator to be the official voice of the physicians of a great state. At least six important medical and health measures which are generally approved by regular medical societies are roundly condemned by this document.

The public will readily understand the difference if the regular associations assume the leadership and fairly but firmly repress those who presume to speak for the physicians through special organizations created by self-seekers under specious pretenses.

MODERN MEDICINE SELECTED BY NATIONAL ASSOCIATION

THE American Association of Industrial Physicians and Surgeons at their semi-annual meeting in Milwaukee, September 28, 1920, adopted MODERN MEDICINE as the official organ of the Association. Beginning with the issue for January, 1921, the department of Health in Industry of this magazine will be under the direction of a board of editors selected by the Association and will be enlarged to meet the new responsibilities of representing the profession of industrial physicians and surgeons.

To the readers of this magazine the new arrangement offers substantial advantages. The American Association of Industrial Physicians and Surgeons is the only American organization of the new but very important profession of industrial medical men. The Organization stands for health in industry in its broadest sense and for the application of scientific medicine to that end. The contributions of the Association, through the columns of MODERN MEDICINE, will profit greatly all those who are especially interested in preventive medicine. The Association

will make the department of Health in Industry a clearing house of information, personal notes, and scientific progress.

With faith in industrial medicine and surgery as the great epochal advance in medicine of these times the editors of MODERN MEDICINE welcome this new alignment with the American Association of Industrial Physicians and Surgeons.

NATIONAL CAMPAIGNS FOR HEALTH WORK

HEALTH workers are actively interested in the progress and success of the two great national campaigns for funds and membership conducted by the American Red Cross and the National Tuberculosis Association, which culminate in the months of November and December.

These two organizations have gained a preeminence in the field of health and welfare; they have the confidence of all people regardless of station; they perform functions which merit the fullest support, and their potentialities for human welfare are almost unlimited.

These organizations are democratically supported, as befits their service. Their call is to the rank and file to whom their service is dedicated.

THE PUBLIC INTEREST IN SCIENCE

ONE of the first provisions requisite in any democratic form of government is a general educational system devised to train the citizens so as to put self-determination on a rational basis. This must be accomplished or there can be no stability of government and no means of translating into terms of general uplift the results of research or of evolving that background of definite information out of which a sound conception of progress emerges. It has not appeared necessary or desirable, however—or at least no consistent effort has been made—to disseminate the results of scientific investigation, and such information on these matters as is current among the general public is fragmentary, unrelated, and, for the most part, acquired through spectacular accounts of the Sunday newspaper. In an effort to gain some idea as to popular conceptions of the fundamental facts of psychology, the University of Iowa recently conducted an inquiry which brought out the fact that mental science is popularly linked up with the occult science and, while general notions as to the nature of dream, subconscious, and hypnotic phenomena are vague in the extreme, reading in regard to the spirit world is general and receives much more ready credence than is accorded accurately determined psychic phenomena. This popular tendency to mysticism in the absence of definite knowledge becomes of urgent importance in view of the readiness with which various religious cults engage to cure bodily as well as mental ills, and of the danger involved in transferring emotionalism into issues which should be determined only upon rational bases.

What gain is it to deny chiropractors legal sanction in the state of New York if Illinois is to be restrained from regulating them and a referendum in California proposes to license them? What does it profit to require a seven year course for physicians if any religious cult can put forth practitioners, or if so-called "systems" with no standards of education are authorized to give diplomas after a two weeks' course of lectures?

The recent statement from the Bureau of Animal Industry of the Department of Agriculture on the extent to which animals have served the public health is especially opportune for the issue in California which, again on referendum, asks the general public to decide on the merits of vivisection; but will the facts weigh out and win against this sort of opposition? The *California State Journal of Medicine* quotes a chiropractic organ as saying, "Let the legislature make its laws and the Medical Board try to enforce them. Give Me the Newspaper Space—Give Me Publicity, and they can have all else, and we will cop the verdicts of the juries."

The materials of research are not of mere academic interest. The products of scientific study should receive publicity through a semi-popular statement of the facts properly presented and persistently offered as public health education. A more rational and more wholesome concept of these matters will emerge only on knowledge acquired from impartial sources as the basis of popular decision. S. P. M.

CHILD HEALTH ORGANIZATIONS COME TOGETHER

THE coordination of the work of several important national agencies dealing with the problems of child health by the American Child Hygiene Association, the American Red Cross, the National Child Labor Committee, and the American Nursing Association is a wise step and doubtless the forerunner of other wise steps in coordinating public health activities. A properly coordinated program has been evolved after prolonged conferences, the associations engaged in the present undertaking are to be commended for the broad and constructive view of service shown by them in working more closely together for the common end.

THE NATIONAL TUBERCULOSIS ASSOCIATION: WHAT IT IS AND WHAT IT DOES*

By PHILIP P. JACOBS, Ph.D., Assistant Secretary, New York City

The National Tuberculosis Association is a shining example of the success that follows sound business methods in a health organization, and the response that may be evoked everywhere by a concrete appeal.

Just as special services are required within the distinctive field of tuberculosis work, so does the larger organization fall into its place in a larger health program. To eradicate tuberculosis involves a comprehensive campaign for public health.

Also, it emphasizes that machinery for health work becomes effective only when industry and the community consent to put their houses in order and when the individual assumes essential health habits.

IN fifteen years the National Tuberculosis Association, starting upon a shoe string, has developed an organization which in the calendar year 1920 will spend, largely in education, approximately $4,000,000. Similarly, in fifteen years the National Tuberculosis Association has stimulated the development of public and private expenditures from hardly more than $100,000 in 1905 to approximately $30,000,000 in 1920, most of which is spent for institutional, dispensary, and nursing work. In these sentences are epitomized the growth and history of the tuberculosis campaign in America.

Begins Public Health Movement

When the National Tuberculosis Association was organized in June, 1904, there was no such thing as a general tuberculosis or public health movement in the United States. The knowledge that tuberculosis is a communicable, a curable, and a controllable disease was the property of only a few savants. The great rank and file of the people were still in medieval darkness so far as tuberculosis was concerned. There were a few scattered efforts, mostly along the Atlantic seaboard, seeking to educate the people with regard to the nature and control of tuberculosis, but most of these exhibited only a feeble light and that at intermittent intervals.

At the very beginning of its career the National Tuberculosis Association wisely conceived that if its work was ever to be done rightly it must be developed by means of proper state and local anti-tuberculosis associations. With this end in view, the first efforts of the Association were directed toward a broad, extensive educational campaign the object of which was to bring to everybody a knowledge of the simple facts regarding the nature, treatment, and prevention of tuberculosis. In the second place the Association sought, on the basis of this education and on the basis of such known facts regarding the spread of tuberculosis in communities and among individuals as could be secured, to develop state and local interest in the disease. It was not long before associations began to spring up here and there in various parts of the country, and by 1908 several hundred such were in existence.

The most difficult problems that the National Tuberculosis Association had to confront in the development of these new organizations were, first of all, the providing of sufficient funds so that the associations could do a proper piece of work in their own communities; and, secondly, the providing of programs along sound lines to prevent the frittering away of the meager funds that might be secured. The alliance of the National Association with the American Red Cross in the Red Cross Christmas Seal Sale proved to be of the greatest possible service in both of these directions. The fundamental, sound conception of the leaders of the National Tuberculosis Association and the Red Cross in those early days that the bulk of the money derived from the sale of Christmas seals should remain in the community where the seals were sold, has been and still is the policy that has made the tuberculosis campaign the greatest public health movement in America.

By means of the Red Cross Christmas Seal Sale the National Tuberculosis Association was able to take a number of valuable steps forward. In the first place, in new and unorganized territory the seal sale was the best way to provide the initial funds with which to develop an infant association. So successful was this method of approach that at the present time a well organized state association with a full time secretary and a business administration is at work in every state in the Union, and by the application of this same principle on the part of state associations many of the larger local centers of population are similarly organized.

*The third of a series of articles on National health organizations prepared especially for the readers of Modern Medicine.

A second step forward, which the Red Cross Seal Sale made possible, has been the development of standard programs. The fact that the National Association was able to give or withhold the contract for the sale of seals has afforded to it the strongest possible means of bringing into line those states that would otherwise have frittered away their seal money in milk and eggs or on loose programs of little or no value to the forwarding of tuberculosis work.

The Program Standardized

In the third place, the succession of seal sales year after year has by means of the division of percentages between local, state, and the national associations brought about a solidarity in the tuberculosis campaign which it would have been difficult to achieve under any other circumstances.

A partial view of offices and library of the National Tuberculosis Association, New York. The extent and efficacy of the work are largely the result of the centralization of activities accomplished through this office.

As a result of this development of the campaign against tuberculosis under the leadership of the National Tuberculosis Association there are at the present time approximately twelve hundred state and local associations and committees for the prevention of tuberculosis in the United States. The number of sanatoriums and hospitals has developed from a hundred to nearly six hundred. The number of clinics and dispensaries has developed from nothing to more than five hundred. The number of nurses doing tuberculosis work it is impossible to estimate accurately at the present time, but as nearly as can be determined from statistics that are available there must be at least 3,000 nurses doing tuberculosis work almost exclusively and there are several thousand others doing some tuberculosis work. In 1905 there was not a single tuberculosis nurse in the United States. Of open air schools, as nearly as can be estimated at the present time, at least 2,000 schools and classes might be grouped under this head. The first institution of this sort in the United States was opened in 1908.

Besides these definite developments, there are a number of indefinite developments not so easy to catalogue. It would be interesting, for example, if one could estimate the number of sleeping porches the antituberculosis campaign has brought about in the last ten years, or how many hundreds of thousands of people have learned to open their windows, or what the effect of the tuberculosis movement has been on public spitting. The influence of the tuberculosis campaign upon the entire public health movement, in the securing of better health officers, or the provision of better laws, or in a number of other ways, cannot be tabulated in cold statistics.

As the campaign against tuberculosis has developed and as state and local associations have been formed in various parts of the country the functions and methods of the National Association have naturally changed. The staff of the Association is constantly growing and the budget has similarly expanded. The original budget of the National Association was approximately $10,000; the Association in 1920 will spend approximately $175,000.

Unifies All Workers

The Association is an organization of laymen and physicians. It is supported entirely by voluntary contributions, its support coming from three sources: (1) a percentage from the sale of Christmas seals contributed by state and local tuberculosis associations; (2) membership dues; and (3) donations. At the present time the Association has a membership of approximately four thousand. By far the largest percentage of money received for its support comes from the Christmas seal sale.

It is governed by a board of directors representing geographic and other interests involved in the campaign. The members of the Association meet once a year in annual meeting and the Board of Directors and Executive Committee from four to eight times a year.

The staff of the Association consists of salaried experts in various matters relating to tuberculosis and is organized in six different services, as follows: Administrative, field, medical, modern health crusade, research, and publicity and publications. A brief outline of the work of each service, which follows, will give a good conception of the general methods and functions of the Association.

The Administrative Service, as its name im-

plies, is responsible for handling the organization's administrative details. Under it comes the direction and coordination of the work of the various members of the staff. It is the service that also provides the contact with outside agencies and coordinates the efforts of the National Association with those of other organizations, both public and private. All of the business transactions of the Association fall under this service. Since the National Association serves as a clearing house for the purchase and distribution of many supplies dealing with tuberculosis, the financial transactions in a given year will aggregate as high as $300,000.

Field Service Closely Related

The Field Service, although closely related to the Administrative Service, is immediately responsible for carrying out the Association's policies in the field. Due to the lack of sufficient funds, it has been necessary recently to cut down the Field Service somewhat. The work is done largely by personal visits by members of the Special Field Staff. Through surveys, individual conferences, group conferences, institutes, correspondence, and in many other ways, the Field Staff keeps in touch with the various activities throughout the country. The Field Service is the organizing department of the Association.

Four Lines of Medical Service

The Medical Service has four distinct lines of work:

(1) The handling of all of the correspondence and other matters of the Association involving questions of medical detail, such as inquiries from patients regarding advice in the treatment of tuberculosis or the stimulation or promotion of medical activities in state and local associations.

(2) The promotion of medical education with particular reference to tuberculosis through state and local associations, medical schools, conferences, and in other ways.

(3) The establishing and promotion of standards for construction and maintenance of hospitals and open air schools; the study and promotion of occupational therapy; and the training and placement of arrested cases of tuberculosis. In this connection the Medical Service cooperates closely with the government agencies doing similar work.

(4) The promotion and standardization of tuberculosis nursing. The secretatry for nursing is in constant touch with the developments of nursing work, and by means of conferences, correspondence, and publication of articles, helps to promote interest in tuberculosis nursing and to coordinate the nursing activities of the tuberculosis association with those of other state and national agencies.

Modern Health Crusade Service

The Modern Health Crusade Service is in immediate charge of the Modern Health Crusade, a movement for the health education of school children. More than six million children are enrolled in the Crusade in 1920. The Crusade aims to teach health habits to children and to provide a system of health education for the public schools. This service originates new ideas for the Crusade, publishes literature dealing with the program and organization, handles supplies necessary for carrying on the work, and promotes interest in higher standards. The Crusade is probably the most popular feature of the anti-tuberculosis campaign at the present time. Every

The first efforts of the Association were directed toward a broad and extensive educational campaign with the object of bringing to everybody a knowledge of the nature, treatment, and prevention of tuberculosis.

state and most of the local associations in the country are doing Crusade work.

Conducts a Research Service

The Research Service falls into three definite lines, as follows:

(1) Study of particular problems, such as those of the indigent migratory consumptive, the economic loss from tuberculosis, the decline of the death rate, and so forth.

(2) The editing and preparation for publication of various monographs and pamphlets put out by the Association. This involves collecting of new material, such as that for the tuberculosis directory, the preparation of the transactions, and the compilation of information on new literature and new happenings for the publications of the Association.

(3) The cataloguing, filing, and indexing of the

literature, publications, and pamphlet material of the office so that it may be available for immediate study by all members of the staff and by others who are interested. The Association's library is gradually developing a complete bibliography on all of the social phases of the tuberculosis problem and on many of the medical phases.

Publicity and Publications Service

The Publicity and Publications Service carries on four different activities, as follows:

(1) The handling of publicity, particularly for newspapers, magazines, and other periodicals. Every well known method of publicity is used in this connection.

(2) The publication of three monthly journals, the *Journal of the Outdoor Life*, the *American Review of Tuberculosis*, and the monthly *Bulletin* of the National Association. The service is responsible not only for soliciting subscriptions and securing advertisements, but also for the editing of these publications. The *Journal of the Outdoor Life* is a popular lay magazine. The monthly *Bulletin* is the house organ of the National Association, and the *American Review* is the medical and scientific journal of the Association.

(3) This Service prepares material for and directs the Loan Service, which includes the loan, rental, and sale of motion pictures, lantern slides, photographs, cuts, special scrap books, etc.

(4) The direction of the Christmas Seal Campaign, membership campaigns, and other special campaigns carried on by the Association, together with the promotion of such campaigns in state and local associations, falls under this Service.

The Framingham Health Demonstration

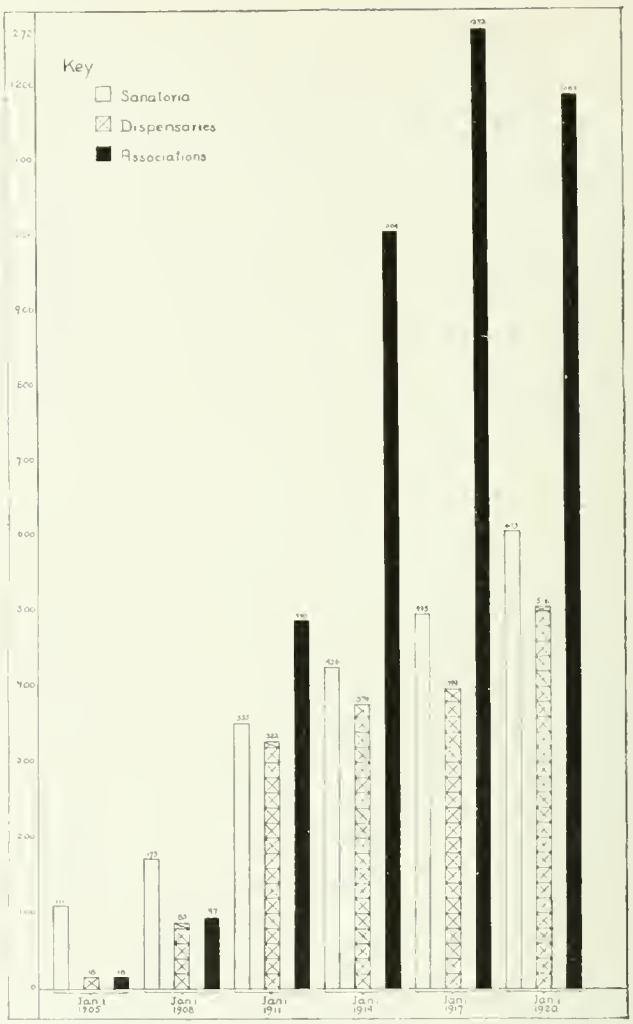
In addition to the work of the various services outlined here, the National Association also conducts the Framingham, Mass., Community Health and Tuberculosis Demonstration. This Demonstration is an effort financed very generously by the Metropolitan Life Insurance Company to see how tuberculosis may be controlled in an average American community.

Definite Policy of Co-ordination

Through its experience of more than fifteen years the Association has developed a number of definite policies. It would be difficult in this space to state all of them. A few of the more general ones, however, might be of interest.

As to associations, most of the state associations have been brought into existence through the efforts of the National Tuberculosis Association and through them in turn the local associations have been organized. In developing relationship with these bodies the National Association has served as a clearing house of information, acted as coordinator, and suggested programs of activity. It has no mandatory powers for the enforcement of programs and policies, but endeavors to offer such sound suggestions that they are readily accepted. By mutual agreement, however, the state associations submit budgets outlining proposed expenditures of funds received from the sale of Christmas seals.

With reference to individuals, the Association has always endeavored to help every person who presented an honest appeal, although it has never been able to dispense relief as such. Its service to the individual applicant has consisted in fur-



A Chart Showing the Growth of the Anti-Tuberculosis Campaign in the United States from January 1, 1905, to January 1, 1920.

The chart is designed to show the growth of the tuberculosis campaign in the United States by the increase in the number of sanatoriums, dispensaries, and associations. The dates given are cumulative in each case, that is January 1, 1911, means all of the sanatoriums, dispensaries and associations in existence on that date. The relative decrease in the number of associations from 1,272 in 1917 to 1,082 in 1920, is not an indication of lack of proper development. It indicates, on the other hand, a more intensified and businesslike reorganization of associations that have previously existed largely on paper, and the substitution in their stead of strong working associations. This meant in a number of states, particularly in New York, a considerable reduction in numbers, but an increase in efficiency.

nishing advice and reference to those who could administer care rather than in giving such care directly. The National Association does not maintain any institutions for the treatment of tuberculosis.

The program of the National Association is entirely one of education, organization and research. In its organization work it has sought to adapt its program to the community. It has always recognized that the problems of one section of the country vary from those of another, and that the solution of the tuberculosis problem in an urban community cannot be applied to a rural one. On the other hand, it has found through experience that well tested methods can be adapted with modifications to almost any part of the United States.

The National Association realizes that tuberculosis is essentially a local problem and that the control of the disease must come ultimately through the perfection of community organization and the development of community consciousness. The national organization may seek to furnish ideas for organization and for standards of work and suggestions regarding methods and programs, but the ultimate development and achievement of the program must be local.

Recognizing that tuberculosis in its various social ramifications reaches almost every avenue of individual and community life, the Association has adopted as a general policy the broadest possible cooperation with health and social agencies, both public and private, that are seeking to relieve human suffering and to promote community betterment. Among such agencies, for example, are the United States Public Health Service and other government departments, the American Red Cross, the American Public Health Association, and the National Organization for Public Health Nursing.

Part of a Larger Health Program

The National Association recognizes that it and its affiliated agencies are only a part of a much greater public health movement. There have been many who have urged either the expansion or merging of the efforts of the National Tuberculosis Association into a broader public health campaign. The Association has wisely maintained its course of specialized effort. So long as approximately one-tenth of all of the deaths of the country are caused by the single disease of tuberculosis and so long as at least one million active cases walk our streets while another million arrested cases are for the most part unaware of their danger, the need for the National Tuberculosis Association is apparent. People generally respond to a concrete appeal, whether one asks for money or for support in a great public effort in which no finances are involved. They are interested in tuberculosis because they know of someone in their own family or their own neighborhood who died of the disease. They are not interested in public health as such, because they never knew of anyone who was sick of public health or who died of public health.

As has been stated above, the National Association and its affiliated agencies have probably made more distinctive contributions to the progress of general public health in this country in the last ten years than any other single agency. On the other hand, I venture to state in closing that the progress both of the tuberculosis movement and of the public health movement as a whole in this country would not have been so rapid had the tuberculosis association listened to the appeal made to it seven or eight years ago to merge its identity with a great general public health effort.

OKLAHOMA HEALTH CONFERENCE

The anti-tuberculosis campaign in Oklahoma has become a general health program. The activities of the very live Anti-Tuberculosis Association in Oklahoma, beginning against the greatest odds, has so coordinated all health activities, and so aroused the general interest and popular support that they have been able successfully to put through most thorough surveys resulting in continuation work in the several communities where the demonstrations were undertaken, in broadening the scope of tuberculosis work to include all the ramifications of organization for a complete health service. The name of the Anti-Tuberculosis Association is henceforth to be the Oklahoma Public Health Association, with Mr. J. F. Owens as president, and Mr. Jules Schevitz as general secretary.

The new régime has had an auspicious initiation in the Health Conference held in Oklahoma City, October 12 and 13, 1920. The scope of the program was made to include rural and urban problems, both from the angle of organization and from civic and individual responsibility. Among the speakers were included the names of such men as Dr. M. P. Ravenel, president of the American Public Health Association, Governor J. B. A. Robertson, Senator R. L. Owen, Dr. S. J. Crumbine, health officer of Kansas; R. H. Wilson, state superintendent of schools; Dr. A. R. Lewis, state health commissioner; and E. K. Gaylord, editor of the *Daily Oklahoman*. The conference was open to the public.

BUREAU OF ECONOMIC RESEARCH

The Bureau of Economic Research, which was organized last February in New York City by private enterprise, opened offices on September 1, 1920, with William T. Foster, M.D.; formerly president of Reed College, as its director. *School and Society* informs us that connections have already been established which provide unrestricted opportunity for the study at first hand of some of the largest industrial enterprises in the United States and Europe. There will be complete freedom for the publication of the results of this research.

THE CRISES OF ADOLESCENCE*

By A. LEVINSON, Chicago

Each individual must find some way to resolve the crises of his own life. Some help may be extended from the outside, but in the last instance self-knowledge and self-control will see him through the external and internal conflicts of life.

The internal struggle becomes acute at adolescence, with danger on the one hand of collapse to the individual whose energy is insufficient, or of ruin from wasted or misdirected superenergy on the other.

The problem of the adolescent is to safeguard his health and his ideals, and at the same time to find means for the sublimation of his highly charged energies.

SOME of the ancient lawgivers set the age of thirteen as the period of the boy's entrance into manhood and twelve as the age of the girl's advent into womanhood. Experience with children has shown, however, that no general rule can be made to apply to the maturation of all children; for not only do children of different races and of different climes vary in their age of maturity, but even children of the same race, living under the same climatic conditions, show individual variations as to the time of maturity. Furthermore, maturity must not be understood to occur in one day. It takes months and even years for the period of ripening to reach its climax. Adolescence comes on gradually during an extended period in which metabolic changes take place in the body whose result is the form of development we call manhood and womanhood.

Marks a Crucial Change

We may regard as extreme the claim of some psychoanalysts that from its very infancy the child's being is governed by the sexual instinct. Aside from the sentimental consideration that such a supposition would rob the babe of what we feel is its greatest asset, innocence, it hardly seems plausible to hold that the child's alimentation and other daily functions are made up of sexual gratifications, even if the word sex be used in its broadest sense. It is safe to assume, however, that adolescence, with all its accompanying phenomena, is not a sudden outbreak but a gradual process which finds its climax at puberty; for adolescence is more than sexuality, it is an acceleration of the metabolism of the body and of the physical and mental processes which manifest themselves in an acceleration of growth, in higher mentality, and in increased energy.

The problems of adolescence are of great importance to the child, the parent, the teacher, the physician and the social worker. False modesty has for many years prevented the free discussion of these problems and we are now paying the price of this reticence. We do not know how to guide our adolescent children and they do not look to us for guidance, but resort to other sources for their information.

Adolescence has been truly termed a crisis, for it marks the crucial change from which some emerge stronger than before while others completely break down under the accelerated metabolism of the body. In proof of this one need only cite such manifestations as the exacerbations of pulmonary tuberculosis at this period from infections that have lain dormant all through childhood, the appearance of toxic goiter, the cropping out of suicidal tendencies, and the complete nervous breakdown that often culminates in dementia praecox.

Just as no two trees, even of the same species, grow exactly alike, so no two children develop in identically the same manner. Many factors influence the character of their development. The course of events in the life of the child depends upon his inherited vigor—which may be termed his constitution—upon his care during infancy, particularly whether he has been breast-fed or artificially fed, upon his susceptibility or immunity to disease, upon his physical and mental training, and upon the numerous factors that enter into his external environment. The many variations these elements may present in different cases only serve to corroborate the fact that all children cannot and do not present the same problems during the adolescent age.

Classify by Energy Potential

Yet in spite of variations in the process of maturity there is one element whose presence or absence characterizes all adolescents, *i. e.*, energy. In the terms of energy all adolescents may be classified in two large, general groups: (1) Those who during adolescence have not enough energy to meet their daily tasks; (2) those who during adolescence possess a superabundance of energy that seeks an outlet. The first group includes

*The seventh of a series of articles dealing with medicosociologic problems in the field of pediatrics prepared for the pages of MODERN MEDICINE by Dr. Levinson.

fewer adolescents than the second, yet many of our children must be placed in this category. There is the child who came into the world prematurely, or the one who was born congenitally weak; there is the child who through the period of childhood has been attacked by one disease after another; and the puny, underfed, undernourished child, the type which becomes a prey to every wind that blows and, unless carefully watched and guided, he may not be able to weather the storms of adolescence.

The greatest need of the child in this group, the child who has not enough reserve energy to meet the new duties thrown upon him is—preparation. The parents must be prepared, and they must in turn prepare the child. A child of this group must not be overworked; he must be taught not to overexert himself, but to conserve the little energy he has. Though a child of this type may make a good showing at school, it is to his eventual advantage if he is not permitted to advance too rapidly. He should be guarded at every step, lest he overstep the limit of his energy tolerance.

The second group represents by far the greater number, including the many children who have during adolescence an excess of energy that seeks expression in numerous ways. The normal adolescent child is a renewed being, with bounding life, new vigor, unaccustomed thoughts. A tingling feeling begins to permeate his being and forge its way forward—the feeling of sex. It perplexes him, bewilders him, and at times threatens to overwhelm him as the crucial point in his development is approached.

At this point the question arises: What can the parent, the teacher, the physician, the nurse, and the social worker do to help the child bridge this crisis safely? Should they offer their assistance? If so, how? My belief is that a great deal of good can be done in this respect, but it must be done early, long before the approach of the crisis. As early as possible the child should be taught the value of self-control, a lesson which cannot be started too early. For greatest effectiveness during adolescence it needs to be begun during infancy and carried out all through childhood. With the moral background of self-control as a bulwark, the parent or teacher can perform a double service for the child during adolescence. He can keep the child of yesterday and the man or woman of today out of mischief, and he can carefully direct the superfluous energy toward fruitful channels—toward study, toward work, toward the building of a happy, healthful future.

Both tasks are difficult and they require deep thought and careful planning for their fulfillment. To keep the child out of mischief, to keep him wholesome in thought and deed, is a difficult task and a delicate one. It is hard to approach the child who may not know anything of the world of grown-ups but who may, on the other hand, know a great deal. Even if one has decided that the child should be taught—and there is now little doubt even in the minds of the most prudish that the child should be taught the truth about himself—the vital question is, what to teach and how.

Beware of Morbid Fear

The child should be taught sexual hygiene, but not in a negative way. He should not continuously be told what *not* to do, nor should he be given lessons in how to abstain from the social evil. Morbid fear and curiosity are aroused by this form of instruction. Far better is it to appeal to the child in a positive way by emphasizing the principle of the conservation of energy, by explaining the law of biological perpetuation in nature, and by showing how it works out in the human world. In a more personal way the child can be told of the value of potential parenthood and of the many ways in which he can influence his life through his actions at the present, adolescent stage. Let him understand that the best that he puts into himself today will come out in him and in his family in later years. Let him be told what it means to a child to be born well, to be happy and healthy. Many of the lessons taught him may lie dormant for a while, but the child stores all these bits of knowledge in his brain and refers to them when the proper time comes.

The direction of the superfluous energy of the child along the right channels is a task that requires a master mind. Unfortunately, but few parents can cope with this situation. Only the parent who is constantly in touch with his child and who has studied his needs and desires since early infancy can find the solution of this problem by directing the child's energy along lines of his natural inclination. Next to the parent, and quite often superseding the parent, is the teacher called upon to direct the child's thoughts and actions. Doubly great is the influence of the teacher upon the child during the plastic period of adolescence. If the modern teacher were not handicapped as she is by having too many pupils and too little remuneration, it would be possible for her to do a great deal more for the child by studying his individual problems and inclinations. If our educational scheme permitted her to devote less time in preparing the adolescent boy and girl for graduation and more time in preparing them for life, how much that would mean to the youth at this most impressionable period of their lives!

Other Agencies Take a Hand

The physician and the social worker can do much to supplement the work of the home and the school. Often neither the parent nor teacher can approach the child. The physician may then be considered the only person who can talk freely to the child on the subject which is at once the most sacred and the most profane. He is supposed to know everything, although many physicians whose advice is deeply sought may not know how to solve their own problems in life. However, as far as his relation to the child is concerned, the physician chosen for this task must be one who has known the child for several years. The family physician who knows the child and the environment in which he has grown up, is, of course, the one best fitted for the undertaking. Next to the family physician in helping bridge the crisis of adolescence comes the pediatrician, whose daily experience with children of all ages makes his advice of value even though he may be a perfect stranger to the child.

The social worker, too, is at times called upon to help the parent settle the difficulties of the adolescent boy or girl. The social worker may be a very important intermediary in cases where the adolescent does not attend school or where the family is not in touch with a physician to whom the child's confidence could be intrusted. In such cases the social worker can do a great deal to bridge the gap between the home and the community, between the child and the outer world of temptations in which he is thrown. By gaining the confidence of the child she can direct him much more smoothly through the many new experiences confronting him and the numerous adjustments he must make in passing from the sheltered world of the home and the school to the large, cold world full of temptations and stumbling blocks.

Clinics for Adolescents

It is to be hoped that the time is not far distant when those who are interested in the welfare of our youth will see to the establishment of clinics for the adolescent, where efficient physicians, nurses, and social workers will be in charge to give advice and instruction to parents on the care and guidance of their adolescent boys and girls. It might at times be best for the parent not to take the child to the adolescent clinic as he would the infant; in fact, it might often be advisable for the child and parent to come separately. This would be an individual problem for the clinic to determine. There can be no doubt, however, of the fact that a welfare clinic for adolescents is a matter of great importance, not only to the individual parent or child who benefits by its instruction and guidance, but to the entire community in which it works. The sooner we are aroused to the need of its existence the quicker may we expect to see its realization.

The Psychopathies of Adolescence

People are waking up to the diseases of adolescence. The field, however, is much larger than the scope of the present day work embraces. The problem now is not only how to handle cases of dementia praecox, but also how to prevent them. The etiologies of all cases of dementia praecox should be studied more thoroughly, but above all it should be realized that the etiology of dementia praecox—a name covering a multitude of sins—should be approached from the standpoint of habit and environment of the child. It would lead one back to the study of nervous children, of meningitis in childhood, of congenital lues, and even to the question of the relation of meningism (conditions simulating meningitis with a negative cerebrospinal fluid) in childhood to diseases of adolescence.

Very interesting would be a study of the relation of convulsions in infancy to disease of adolescence. A study like this would necessarily stretch over a period of many years, but would prove to be very fruitful. Interesting, also, would be the study of the causes of the sudden reappearance of a latent tuberculous infection during adolescence. It is only by a study of the intricacies of adolescence that we may hope to help our children bridge the extremely interesting and at the same time critical period in their lives with the greatest benefit to themselves and to the rest of the world.

CITIES RANKED BY MORTALITY RATES

A graphic chart has been issued by the American Child Hygiene Association which is directed to the thoughtful attention of mayors, health officers, editors, citizens, and taxpayers in the interest of the 2,500,000 babies born in the United States each year. The infant mortality rates for cities are shown by the rank in population. The cities with infant mortality rates under fifty are as follows: Brookline, Mass.; Berkeley, Calif.; Marinette, Wis.; Aberdeen, Wash.; Everett, Mass.; Madison, Wis.; Piqua, O.; and Alameda, Calif.

The quickest and easiest way to reduce a high infant mortality rate, says the bulletin, is to demand the registration of every birth as required by law. It is also the only fair deal for the baby. His citizenship, his right to go to work, and his right to property may depend upon his birth having been registered.

Do you know where your city stands? Your city should ask itself these questions: Are all births registered? Can all mothers get prenatal care? Are our midwives licensed and inspected? Have we child health centers? Is our milk supply pure? Are our school children taught health habits? Do we have medical school inspection?

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., 2nd, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

LEWIS J. POLLOCK, M.D., *Chicago*
Neurology, Psychiatry and Psychology

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

JOSEPH C. BOCK, Ch.E., Ph.D., *Milwaukee*
Physiological Chemistry

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

THE GENERAL PRACTITIONER

NOTHING is more interesting to those of a philosophical frame of mind than to sit still in an easy chair and watch the pendulum of medical thought swing from extreme to extreme until it finally reaches an equilibrium. The gunshot prescription was followed by a period of therapeutic nihilism, and this in turn ended in a burst of glory for Ehrlich's great sterilizing therapy, and today men are still trying to combat by chemical means diseases which were not very long ago considered unreachable.

The days of general practice were followed by the wave of specialism,—a specialism that was without bounds and knew no reason. In one big clinic in this country there was a department for diseases of the organs above the diaphragm and, when a patient with myocardial insufficiency developed an enlarged liver, a colleague from the department downstairs had to be called in consultation. Fortunately, this intense phase of specialism was short lived because of its own limitations. Yet today it is far from dead. Diagnostic clinics composed of a group of individuals, each working on a different part of the patient's anatomy, are becoming more and more common and are replacing the skilled individual practitioner.

It is fair to ask the question: Can such diagnostic clinics ever replace the man who, trained in the school of experience, learns to find, place, and evaluate the symptoms and signs in his patient? Superficially, it would seem that the tremendous ramifications of modern medicine in the fields of correlated science, into industrial hygiene, and sociology would make extreme specialization necessary. But, after all, there is no use in a lot of data brought together by a group of men unless there is some one individual able to sum up information accumulated by the group. Successful practice is never possible unless the patient is considered as a whole with a mind and body, rather than what is in effect regarding him as a bundle of associated organs. Therefore, the head of the diagnostic clinic has to possess certain qualities which, it seems to us, are very closely related if not identical with those developed by the first class general practitioner in the course of his own practice.

Reviewing for a moment the training of the different types of men in medicine, it can easily be seen that the hospital bred man looks at disease as an accomplished fact; by means of careful clinical observation in the wards, controlled by the most exact laboratory methods, he is able to have a perfect grasp of the proved product; but, as Sir James Mackenzie has often said in recent writings, he has not learned to study disease in the incipient stages and he misses the mental training involved in following the course of illness from its very outset. Furthermore, he is at least liable to the great fault of dispensing with his senses and relying upon technical methods of procedure for information which he could obtain unaided. Important and valuable for the scientific study of disease, especially for the advance of rational thought in medicine as opposed to empiric progress, the technical and laboratory developments have lagged behind the clinic in actual practical help to the physician. For instance, the electrocardiagraph cannot be interpreted by anyone who is not specially trained in heart disease and, except in very rare cases, adds nothing to this man's knowledge of his patient's condition. Blood chemistry, which has occupied the field for many years, is in the same position. In the study of diseases of the kidney, for instance, it has not given much of practical benefit which the physician must know to help his patient; in fact, as a recent author commented, the hospital physician is apt to rush into detail at the expense of the whole.

Contrast with this the man who is either unable or unwilling to take the time necessary to pursue the more intensive type of investigation just discussed. Is he any less capable? Is his field any less broad because of this? Of course, the answer depends on the type of the particular individual under discussion rather than the type of work. A man in the country or city who is forced to develop his senses, who must rely on information obtained purely by personal study, must, if he is to develop at all, pretty soon show those traits which Mackenzie believes will guard the future of medical practice. It is he, rather than the hospital physician, who sees disease before the picture is painted in all its colors. It is he who must watch the daub take form, when at first everything seems blurred. Without the facilities for determining non-protein nitrogen, he is able to differentiate kidney lesions; without an expert ophthalmologist, he has to know enough of the ophthalmoscope to interpret an eye ground. Indeed, there are a large number of men doing general work who not only have the burden of individual therapy but must also carry the fight of modern medicine into industry and into the home. It is the general practitioner on whose support any tuberculosis campaign firmly rests. It is the practitioner going into the homes of factory workers who has to realize and correct unhygienic home surroundings.

We believe that the pendulum is swinging to a more wholesome point of view of medicine. Indeed, room is found for every man. There may be supermen in such a scheme, but the general practitioner will form the mass of the army.

THE MEDICAL CARE OF THE NEWBORN INFANT

WHO shall take medical responsibility for the newborn infant? This question recently was discussed before the American Child Hygiene Association held in St. Louis, October 11-13, 1920. Dr. A. N. Creadick of the Yale Medical School made a strong plea for the obstetrician's right to the infant and offered an impressive summary of the satisfactory results achieved under this arrangement in New Haven. In answer, Dr. J. P. Sedgwick of the University of Minnesota not less emphatically asserted that in Minneapolis the obstetric department, which only reluctantly had turned the newborn babies over to the pediatricians, now expresses greatest satisfaction with this change.

This proves a striking divergence of views between the two debaters; but, after all, how unimportant is this dissensus in itself, as long as there is such perfect agreement among them as to the evident fact that the baby is doing very well as long as somebody is interested in it, obstetrician or pediatrician. Both essayists represent well managed university hospitals. Why should they jealously contend for the exclusive right to the newborn infant, if we all so thoroughly agree that in the ideal, modern hospital the patient is not the property of any one physician or any one department, but is justly entitled to the full benefit of the sum total of skill represented in the hospital's medical staff? The child born in the favorable environment of a university hospital is guaranteed perfect safety for these first ten or fourteen days of its existence. It will make not the slightest difference whether in case of doubt the obstetrician consults the pediatrician—or the latter seeks counsel from the obstetrician, who surely possesses better information concerning the mother.

Obviously, however, only a very small fraction of all newborns will be fortunate enough to enjoy such perfect medical care. Our chief concern should be with the many others. It is an incontrovertible fact that the overwhelming majority of infants during the first few weeks of life are not receiving that intelligent supervision, especially in regard to feeding, that is due them. In the home, the physician tends to leave the management of the newborn to the nurse, trained or only practical; or to the mother, as the case may be.

Even in private hospitals the attending physician is inclined to manifest but little interest in the baby, and relies to a large extent on the nurse in charge of the nursery, as a rule a fairly competent woman. This, at least, is the experience of the author of these lines, an obstetrician keenly interested in the normal breastfed baby.

Dr. Sedgwick made the facetious statement that the obstetrical attendant's concern in the main seems to consist in the successful separation of the fetus from the mother, and then is prone to regard the infant merely the by-product of the process. This is a harsh verdict—but who would dare to deny that it contains a great deal of truth?

The present situation is decidedly unsatisfactory and must be changed. Of course, this means that the customary attitude of the physician attending the patient during labor and the puerperium must change. It seems plausible that if he were fully conscious of the great practical importance of this question, and at the same time felt competent to handle the newborn intelligently, he would without fail exhibit the same interest in this as in any other of the medical problems he meets in his daily work.

At present he is lacking in knowledge concerning the specific medical needs of the newborn. Responsibility for this evident deficiency rests entirely with the medical schools. From this viewpoint a discussion between an obstetrical and pediatrical teacher is of some significance. They must settle their dispute concerning their respective competency—not in the interest of those few babies under their care, but for the sake of the medical students, for the ultimate benefit of all babies, born in years to come, under the supervision of these students as future practitioners of medicine.

Instruction in the medical care of the newborn of necessity will have to be given in the maternity wards, as a part of the general instruction in the management of the puerperium. The obstetrician, therefore, offhand would seem the proper man to do it, granted that he is equipped for the task. Otherwise, he will better leave it to the pediatrician. However, under all circumstances the pediatrician must be given free access to the maternity ward. The obstetrician always will be in need of his advice in dealing with suspected or existing anomalies, either congenital or acquired as the result of birth traumatism. It would seem desirable, and entirely feasible, to make previous service as intern in the pediatric department a condition for the appointment to residentship in the obstetric service.

It is of no particular importance who gives this instruction, but it must be given more efficiently than in the past, if we are to secure practitioners both desirous and capable of taking responsibility for the newborn infant. In the hospital the baby immediately after birth might well pass into the hands of a pediatrician; in practice it will ever be necessary that the physician who attends the mother during pregnancy and labor, will attend to mother and baby during the puerperium. H. E.

SURGICAL TREATMENT OF HYDROCEPHALUS

IN A recent publication Dandy[1] reports results of investigations tending to verify his opinions concerning the mechanical origin of internal hydrocephalus. It has been shown that there is practically no absorption of the fluid formed in the ventricles, not until it has passed out through the foramina of Huschke and Magendie into the finer radicles of the subarachnoid space. Any process which would cause a blocking of the flow of fluid, either at the foramen of Monro, in the aqueduct of Sylvius or at the exit from the fourth ventricle, the above named foramena, will cause the fluid to dam back and result in an internal hydrocephalus. Cicatricial stenosis of the aqueduct of Sylvius is, according to Dandy, the most frequent single lesion in congenital hydrocephalus, accounting for about 50 per cent of all cases. The obstruction is a result of inflammation, either the post-natal infections, such as encephalitis, meningitis, etc., or, in the congenital cases, some prenatal intracranial inflammation, of toxic or it may be of bacterial origin; or the obstruction could result from pressure from tumor.

The older the individual the more resistant to injury is the aqueduct. As the fluid accumulates the ventricles expand. In the infant the size of the head increases, but, nevertheless, the increase in size of the ventricles is always at the expense of a greater or less amount of brain tissue. A simple method to ascertain whether or not the hydrocephalus is due to an obstruction is to inject a strain—indigocarmin—into the ventricle. In the communicative hydrocephalus a spinal puncture thirty minutes later will reveal the stain in the spinal fluid. Ventriculography will often show if the obstruction is in the Sylvian aqueduct or at the foramina of Huschke and Magendie. If the aqueduct is patent, air can be made to enter the fourth ventricle by careful injection and manipulation of the head. In these cases the fourth ventricle is usually large.

The operative procedure attempts to reopen the aqueduct. The cerebellum is exposed through a sub-occipital opening, the vermis is elevated and the roof of the fourth ventricle exposed. The vermis is hemisected and the roof of the ventricle split. A fine catheter is inserted into the aqueduct, gently pushed upward until the obstruction is reached, and then, through the obstruction, into the third ventricle. Fluid will begin to flow as soon as the third ventricle is entered. Larger sounds are now used to dilate the passage and, finally, a small rubber catheter is pressed into the newly made channel and left in place for two or three weeks, thus forming an artificial, patent aqueduct. The anterior part of the tube lies in the third ventricle, the posterior part in the fourth ventricle. The tube is anchored to the dura by means of a silk suture. The wound is closed carefully, leaving the tube as a deeply buried foreign body. The tube is left in place as long as possible in the hope that a lumen of epithelium may form, resulting in a channel which will remain patent.

Dandy claims that no ill results have followed the incision into the vermis. He has operated twice by this method. Both patients recovered from the operation; one died a few weeks later of pneumonia, but the second is living and now, one year after operation, seems well and shows no symptoms of hydrocephalus. Dandy pleads for a careful examination, so that the condition will be recognized early, before there has been much destruction of brain tissue.

Editorially, we know of no operation which has proved a success in congenital hydrocephalus and are, therefore, interested in watching the development of Dandy's method, which seems to be based on most careful study and attempts a cure along physiological lines. R. B. B.

1. Dandy, Walter E.: The Diagnosis and Treatment of Hydrocephalus Resulting from Strictures of the Aqueduct of Sylvius, Surg., Gynec. & Obstet., 1920, xxxi, No. 4, p. 340.

PRESERVING HUMAN SERA FOR TRANSFUSION TESTS

LYON* reports that human sera from groups two and three were preserved for a year with 0.5 per cent phenol, and at the end of this time they were perfectly satisfactory for determining the blood group of an individual for purposes of transfusion. The same sera were kept in a dry pulverized state in the icebox and re-dissolved in distilled water containing 0.5 per cent phenol, and also showed good agglutinating properties, but were much inferior to the phenol-preserved serums.

This study seems carefully done and well controlled. These results, therefore, deserve serious consideration, and should be checked by repetition in other laboratories. If these findings stand the test of practical application, they will be of great practical value.

It has been demonstrated time and again that before doing a transfusion it is absolutely essential to perform transfusion blood tests, so as to select a satisfactory donor and thus prevent the serious results which occur when agglutinable blood is transfused. Only in an extreme emergency is it justifiable to perform a transfusion without previously determining that the donor's blood is compatible with that of the patient. By determining both the group of the patient and the group of the prospective donors a proper donor can be selected. In large hospitals and laboratories where transfusion tests are made frequently, there is always sufficient serum from Groups 2 and 3 with which to determine the group of any other blood. Since these sera deteriorate rather rapidly, it is quite a problem in small hospitals to have the necessary sera in the laboratory, or easily at hand. Fresh serum must, therefore, usually be secured at the time of the test from persons known to belong to Groups 2 and 3. In the shifting personnel of hospitals, this is sometimes difficult. Therefore, if, as Lyon's work indicates, sera can be kept almost indefinitely with 0.5 per cent phenol, it will make it possible for all institutions always to have on hand active serum of Groups 2 and 3, so that transfusion tests can be done at a moment's notice. W. T.

*Lyon, M. W., J. R.: Potency of Some Old Human Isohemagglutinating Serums, Jour. Am. Med. Assn., 1920, lxxv, No. 15, October 9.

THE TYPHOID CARRIER PROBLEM

OSBORN and Beckler,[1] after careful investigation, have come to the conclusion that the axiom "once a carrier, always a carrier," is a good one for health officials to stand by in reference to typhoid carriers.

They have determined that "51 typhoid carriers were apparently responsible for 493 cases of typhoid fever. Of these carriers, 41 per cent transmitted the infection to others by milk; 35 per cent were food handlers, infecting others probably by food. The remaining 24 per cent of the carriers were in such occupations that could have

1. Osborn, Stanley H., and Beckler, Edith A.: Once a Typhoid Carrier, Always a Typhoid Carrier, Jour. Infect. Dis., 1920, xxvii, No. 22, August.

2. Henes, E. J.: Reported at the Tri-State Medical Association, Waterloo, Iowa, October 6, 1920.

caused the cases associated with them by food or by contact."

They determined that the carrier state is intermittent in nature. Some carriers caused no known cases for a period of years, and yet, later cases could be attributed to the carrier, and at this time typhoid bacilli were isolated in his excreta.

Typhoid bacilli were demonstrated in the excreta of a number of individuals many years after they had suffered from typhoid fever. The attack of typhoid fever had occurred from sixteen to forty-four years prior to the first case traced to different carriers.

Some carriers whose gall bladder harbored typhoid bacilli remained carriers even after the gall bladder was removed.

Too much emphasis cannot be placed on the importance of securing three release cultures from the stools and urine of recovered typhoid cases before they are allowed again to enter upon their usual daily life.

Osborn and Beckler have used the usual laboratory methods of isolating typhoid bacilli from stools and urine. These methods are perfectly satisfactory, but attention should be called to a more recent method which might determine a carrier state when this cannot be determined from bacteriological examination of stool and urine. Henes[2] has reported very interesting studies of cultures of duodenal contents secured by means of a duodenal tube in convalescent cases of typhoid fever. In some of these cases typhoid bacilli have been isolated from the duodenal contents when they could not be isolated from the stool. This is a comparatively simple procedure, and should be added to the already established routine examination of recovered cases of typhoid fever before these cases are released from the hospital or from home.

The almost complete control of typhoid fever, from the epidemiological point of view, which has been accomplished in recent years should not allow the medical profession to become complacent over the contagion of typhoid fever, but should spur the profession to be both on the lookout for typhoid carriers and to make universal use of typhoid vaccination. W. T.

THE TOXIN, STREPTOLEUKOCIDIN

NAKAYAMA[1] has demonstrated that in cultures of Streptococci, especially when this organism is grown in a mixture of broth and either goat serum or horse serum, that a soluble toxin develops which destroys leukocytes. This toxin, which he calls streptoleukocidin, appears to be distinct from streptolysin. A characteristic of streptoleukocidin is that it destroys leukocytes; a characteristic of streptolysin is that it dissolves red cells. Streptoleukocidin prevents the phagocytosis of Streptococci by leukocytes.

Antistreptoleukocidin was produced in the serum of rabbits by injecting streptoleukocidin at intervals of three to four days. This antiserum was able to neutralize the toxic leukocidin when tested *in vitro* by the usual opsonic methods. The leukocidin completely prevented phagocytosis of Streptococci, but, when antileukocidin was also present, the leukocytes were able to take up an average of eight Streptococci.

No report is made of the clinical use of the antistreptoleukocidin sera. Since the antistreptococcus sera which are available have been demonstrated to be valueless in the therapy of severe Streptococcus infections, it is hoped that this antistreptoleukocidin serum will be tested out clinically. If this antiserum becomes generally available, it is of importance to test its efficiency in clinical cases. W. T.

1. Nakayama, Y.: On the Toxin for Leukocytes Produced by Streptococci (Streptoleukocidin), Jour. Infect. Dis., 1920, xxvii, No. 1, July.

HYPERCHOLESTERINEMIA

BURNS[1] has demonstrated in a case of a rare disease, xanthoma multiplex, that the deposit of cholesterol in the skin is the cause of these skin lesions, and also that the condition is marked by a great excess of cholesterol in the blood. The presence of cholesterol in the skin lesions verifies previous work of Pollitzer and Wile.[2]

This investigation is of especial interest to the dermatologist, but should be of interest to physicians in general, in that it calls attention to the importance of cholesterol blood determination. In a recent issue of this publication, attention has been drawn to the relationship of hypercholesterinemia to pregnancy and to cholelithiasis. This careful investigation of Burns is mentioned here to emphasize the importance of adding blood cholesterol determination to our routine in the clinical laboratory. W. T.

1. Burns, Frederick S., M.D.: A Contribution to the Study of the Etiology of Xanthoma Multiplex, Arch. Dermat. and Syph., 1920, ii, No. 4.
2. Pollitzer and Wile: Jour. Cutan. Dis., 1912, xxx 235.

SPREAD OF SPIROCHAETA PALLIDA

BROWN and Pearce* have reported a review of some extremely important investigation which they have made on the rapid dissemination of Spirochaeta pallida from the primary focus of infection.

This problem was studied by producing a syphilitic lesion in the scrotum of rabbits and determining how soon after inoculation a primary lesion appeared on the scrotum and how soon Spirochaeta pallida could be demonstrated in the inguinal lymph nodes and in the blood stream. It was found that the inguinal lymph nodes contained Spirochaeta pallida less than forty-eight hours after the time of inoculation. It was also found that as early as one week after inoculation, Spirochaetae were present in the blood stream. This was determined by the ability of the inguinal lymph nodes and the blood to cause syphilitic infections in other rabbits.

As the primary lesion in the skin of the scrotum did not appear until about a week after inoculation, it can be seen that a wide dissemination of the Spirochaeta was present in the rabbits even before the primary lesion appeared in the skin.

The authors state that these results cannot be transposed directly to the consideration of the dissemination of the infectious agent in human cases of syphilis. Nevertheless, these data are very suggestive of a similar dissemination of the Spirochaeta pallida in syphilitic infections in man.

The results of these experiments should be considered to be of extreme importance to clinicians. They show that at no time can a syphilitic infection be considered a local disease, and therefore that every syphilitic infection should be considered and treated as a syphilitic infection of the entire body. This means that as soon as the diagnosis has been proved, even though only an insignificant primary lesion is present, vigorous antisyphilitic treatment should be at once instituted and continued.

The second important lesion to be learned is that local excision of a primary syphilitic lesion is incapable of

*Brown, Wade H., M.D., and Pearce, Louise, M.D.: A Note on the Dissemination of Spirochaeta Pallida from the Primary Focus of Infection, Arch. Dermat. and Syph., 1920, ii, No. 4.

ridding the patient of the syphilitic infection. By the time the initial lesion is manifest, the infecting microorganism has spread widely throughout the body. It would be a false security to believe that simple excision of the primary focus removes the syphilitic infection from the patient. The procedure of excising a primary syphilitic lesion has fortunately been practised only infrequently, and now has no justification whatsoever.

This excellent investigation completes another chapter in the study of syphilis, and demonstrates that one must observe extreme vigilance and thoroughness in treating cases of syphilis. W. T.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

The program presented by the Mississippi Valley Medical Association at its forty-fifth annual meeting in Chicago October 26 to 28 exemplifies the marked degree of excellence which may be brought out in a program of this kind. Specialists of unquestioned achievement presented the several subjects and related materials and contributory studies were so grouped as to coordinate the best work that is being done in the several fields.

The address of the president, Dr. Frank B. Wynn[1], of Indianapolis, Ind., dealt particularly with the development of specialties in medicine and the decline of the general practitioner. He declared that this has resulted in a spirit of materialism, although specialism must be credited with material contributions to the science of medicine. The material success that has attended certain specialties has had an indirect result in a loss of prestige on the part of the specialist on account of his desire for money, but the strictly ethical specialist has realized the shortcomings of the over-development of the specialties and has made a sincere effort to get away from them. The penchant for specialism has undoubtedly led to a broadening of elective subjects in medical education. In a particular instance reported, the postgraduate student in medicine stated that he was taking "some surgery and some pathology." The tendency just now emphasizes the importance of general information. This is especially of value in the matter of making a diagnosis, as it is most essential that the patient be considered as an individual, taking into account his psychology, home environment, and his business. The highly specialized man, with his eye on the pathologic gall bladder, can operate for and relieve the local condition, but it does not necessarily follow that his work is worth while. Among a great many surgeons there is a tendency to operate to find out what is the matter; but, according to Dr. Wynn, real skill consists in making the diagnosis to determine the disorder, and in most cases the operation should merely verify a diagnosis previously worked out.

Dr. Louis B. Wilson, of Rochester, Minn., presented a careful statement of the present status of pathology as related to other specialties. Incidentally he analyzed the report of the Council of Medical Education to the American Medical Association as it relates to the status of the pathologist, his underpay, and faulty qualifications as a member of the clinical staff. Dr. Wilson considers that pathologists fall into two groups, (1) the pre-clinical group, who, for teaching or technical purposes, are chiefly concerned with the experimental laboratory; and (2) the clinical group. A pathologist qualified to fall into the latter category, according to English tenets, should, up to the age of thirty-five, not be specialized to such a degree that he would be unable at any time to carry on clinical work successfully. Dr. Wilson would extend to the age of sixty-five the period in which the pathologist should be so close to the clinical aspects of the material he handles as to be perfectly competent to handle the clinical as well as the pathologic end of the cases. He placed great emphasis upon the importance of professional acquaintanceship as contributing toward personal standing and respect, as well as toward correlation of knowledge and readiness in its command. In order to provide a qualified man for the head of a pathological department, such a post should, in his opinion, command $10,000 a year, with $7,000 for his assistant, $3,000 or $4,000 for instructors, and from $1,000 to $2,000 for fellows. The total department on a right basis would cost about $40,000 a year, which sum he proposed to secure from beneficent individuals. As to the shortage of pathologists, Dr. Wilson said that at the close of the war the card catalogue of the Surgeon General's office showed 750 pathologists, and he had a personal knowledge in addition to that of most of the leading men in the country. Of repeated calls he has had to recommend men for appointment in pathology, which would in the aggregate run perhaps to 750, he has been able to supply only two. Inquiry made throughout the country among pathologists has developed the fact that even if they could afford to pay a high stipend, the men cannot be secured, and in the Mayo Clinic they find the pathologic service the hardest of any to fill.

The address in surgery by Dr. Charles Mayo, of Rochester, Minn., dealt with the surgical treatment of peptic ulcer. He gave details of the management of this operation and its success in the series of the Mayo Clinic. He advocates resection for the cure of peptic ulcer because a condition of this kind affords a chronic irritation which favors the genesis of cancer. Cancer has in a given per centage of cases developed upon the site of an old ulcer, the cultures in these cases having been obtained from the walls of the ulcer, not from the ulcer itself. He attached some importance to the possibility of recurrence, as jejunal ulcer, after resection, which may result from a stoma left too large or too small, too long a jejunal loop, or the improper application of the jejunum to the stomach.

The symposium on the disorders of the internal secretions was comprehensive and ably treated. Dr. Walter B. Cannon gave a rapid summary of his work on the thymus and adrenals. Others taking part in this symposium were Dr. John L. Tierney, St. Louis, Mo.; Dr. S. E. Bandler, New York; Dr. George H. Hoxie, Kansas City, Mo.; and Dr. George Draper, New York.

The symposium on the problem of the primary anemias was led by Dr. Charles P. Emerson, of Indianapolis, who discussed it from the angle of the internist. Dr. Emerson thinks it is to be deplored that the disease has received an appellation that is drawn from the end picture of the condition, that, when a diagnosis can be definitely made from the microscopic picture of the blood, the patient is beyond help other than palliative measures. In dealing with these cases one must always bear in mind that spontaneous remissions tend to occur and undue optimism is to be guarded against. He has seen remarkable benefit to the patient from heliotherapy. The surgical aspects of the condition, according to Dr. Willis D. Gatch, have problematic value, the analyzed results of published data being, on the whole, unfavorable. Virgil H. Moon discussed the pathologic considerations.

The surgical and pathological considerations of tumors of the bladder were handled, respectively, by Dr. Hugh Cabot and Dr. A. S. Warthin, both of Ann Arbor, Mich.

[1] The presidential address, "Present Trends in Medical Practice," by Dr. Frank B. Wynn, will be published in the December issue of MODERN MEDICINE.

NERVOUS AND MENTAL DISABILITIES AS RELATED TO EFFICIENCY

By LEWIS J. POLLOCK, M.D., Chicago, Ill.

ONE of the lessons taught by the late war concerned itself with the importance of nervous and mental disabilities as related to the efficiency of a cross section of our young population. The necessity for this study and treatment of mental deficiency was glaringly demonstrated. The social gain obtained by placing individuals of particular intellectual levels to tasks corresponding to their capabilities, was emphasized. The prophylactic value of weeding out neuropathic material was proved by the relatively low incidence of war neuroses in our army.

Concrete Evidences of Gain

That which we have learned at such a cost must now be applied to our problems of social and industrial medicine. It is gratifying to point to some concrete examples of the recognition of the importance of the problems of mental deficiency and the hygiene of childhood.

In 1913 the state of Ohio authorized the creation of a Bureau of Juvenile Research. In 1915 there was appropriated $100,000 for the erection of buildings where these children may be cared for while under observation. These buildings are now under construction. The law particularly emphasized that this was to be a research institution. Henry H. Goddard, its director, states that "part of its function is to study these cases with a view of discovering some solution for the many problems of juvenile delinquency and abnormality."

The State Commission for Mental Defectives of the state of New York has submitted to the legislature of that state its first general report.[1] The general policies of this Commission are expressed as follows: "A state program for the care, training, segregation, and supervision of mental defectives may be conceived as being (1) institutional; (2) extra-institutional.

Institutional Requirements

"Institutional facilities must be adequate or else the program will fail in most particulars. These facilities will vary somewhat in type, according to the section of the country, the particular interests of superintendents, and boards of managers, and whether the institutions are intended to provide training, permanent segregation of low grade inmates, or long continued segregation of defective delinquents. There should be detention and observation hospitals where certain cases of suspected mental defect may be sent for careful examination and classification.

Extra-Institutional Facilities

"Extra-institutional activities for a state wide program for mental defectives include: (1) the mental examination of backward school children; (2) special classes in the schools; (3) mental clinics, both fixed and movable; (4) after-care of special class pupils; (5) supervision of cases and paroled and discharged from the institution; (6) special training of teachers; (7) census and registration; (8) identification and supervision of all uncared for defectives and the selection of those who need institutional care; and (9) stimulation of scientific research. In some of these matters the work of the Commission should be merely in the line of cooperation with other state departments, notably the state department of education. In the matter of school children, it should begin its activities when the department of education leaves off; for example, examination of the backward school children is essentially a function of the Department of Education, but the Commission for Mental Defectives should be kept informed of the results of these examinations, and should assist in proper provision, when this is necessary, for these cases after the school period. Mental clinics will be referred to in more detail in a subsequent paragraph. They should be operated, for the present at least, in conjunction with other state departments, notably the State Hospital Commission and the State Department of Health. A census and registration of the feebleminded should be made by the Commission, although this will be a matter of gradual progress and possible only when the whole program is working smoothly. The Commission should have attached to it social workers to provide for the extra-institutional supervision of all uncared for defectives in the community.

"The necessity for such a commission is seen when we review the statement that 'Conservative estimates from various sources agree in showing that there are at least 40,000 mental defectives in New York state outside of institutions, while the state is caring for only about four thousand, or one-tenth. Forty thousand beds for mental defectives will probably never be required, but the discrepancy between these figures is too great to be overlooked, for undoubtedly more than one defective in ten requires institutional care.'"

What Care Accomplishes

A concrete example of what may be accomplished by the psychologic study of atypical children and their proper teaching is offered in the pages of the *Psychological Clinic*.[2] Included in the issue referred to are details of cases described, among other, by Lightner Witner, Sarah Warfield Parker, and Gladys E. Poole.

Widespread attention should be directed to such studies, not only among physicians, psychologists, and teachers, but the general public. The indifferent neglect with which such cases are so frequently treated, often for selfish reasons, contributes in no small degree to the impoverishment of the state and society.

The necessity for "cooperation between the psychologists and psychiatrists"—which should include the general practitioner and neurologist—is emphasized in a communication by Morris S. Vitteles, M.A., who deals with "A Case of Loss of Psycho-motor Control, Suspected of Malingering."

The patient was discharged from a hospital of the United States Army with a diagnosis of malingering. At the Psychological Clinic of the University of Pennsylvania he was said to present the symptom-complex of "profound hysteria."

From the standpoint of nomenclature it would be preferable to classify such a case as one of hysteria showing a loss of psycho-motor control. The necessity for the

1. First Annual Report of the State Commission for Mental Defectives. State of New York, Legislative Document No. 443.

2. The Psychological Clinic, May 15, 1920, xiii, Nos. 4-7.

cooperation for which Vitteles pleads is well demonstrated by his own exposition of certain elements of his article. He states that "The conditions which motivated the physician in the Army hospital to discharge the subject as a malingerer are unknown to us." It seems clear to the reviewer that the conditions had to deal with diagnostic ignorance, if the patient really suffered from hysteria. One of the objects of the author's examination of the subject was "to determine whether such symptoms as the gait, the fatigue, the intentional tremor, the stammer, etc., were consciously and intentionally falsified—whether, in other words, there was an actual functional defect in psycho-motor control."

Having once demonstrated the loss of psycho-motor control, he is satisfied, but makes no attempt to satisfy us, that no case showing defect in psycho-motor control can present this deficiency as part of a conscious and volitional hypothecation. Inasmuch as the only practical clinical difference between a case of malingering and hysteria is the consciousness or unconsciousness of the hypothecated symptom, if, the demonstration of the presence of a deficiency of psycho-motor control spoke for the unconsciousness of the process, we would have a royal road to the differential diagnosis between these two conditions. It seems to the reviewer, however, that the psychologist may well be fitted to determine the degree of psycho-motor control but that only a trained and experienced neuropsychiatrist can determine whether the gait, intential tremor, and, among other symptoms, the loss of psycho-motor control, is functional or organic; and, if functional, whether hysterical or malingered.

NEO-NATAL MORTALITY

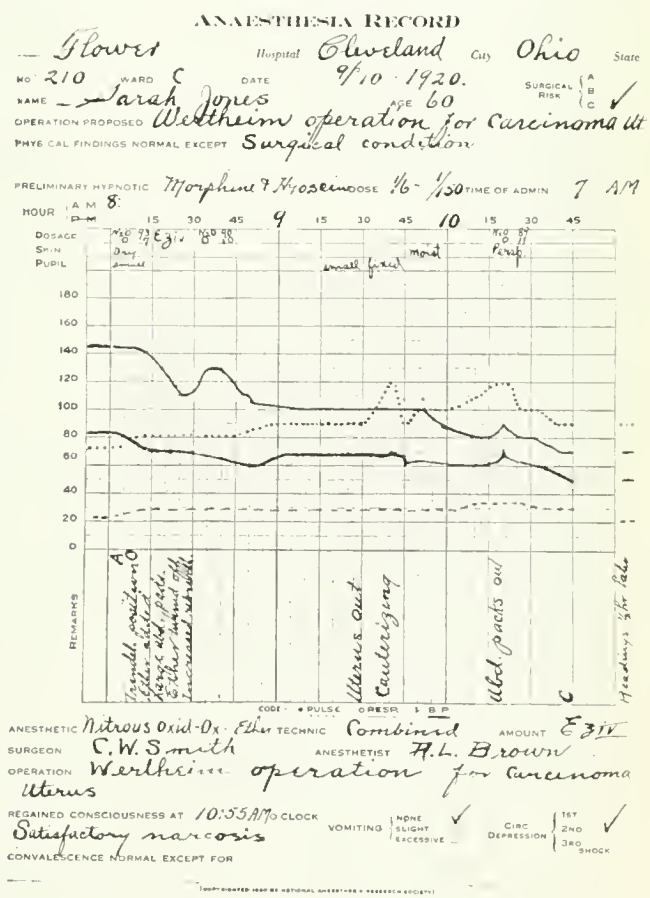
The Frederick A. Packard lecture of the Philadelphia Pediatric Society was delivered this year by Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P., Lond., and is reported under the above caption in the London *Lancet*, May 22, 1920. The foremost position in medico-sociological history in the last fifty years must be given to the steady decline of the birth rate which has occurred in most civilized countries and to the increased emphasis placed upon the welfare of infants and their mothers, he says.

The first part of his lecture is devoted to a minute analysis of the causes of deaths in infants, and especially to deaths which occur in the first month after birth. The medical certification of deaths among infants is much less satisfactory than for deaths of any subsequent age, and he considers it futile to advise physicians to be more accurate in their certificates until we have more pathologic knowledge of early infant mortality. He urges that this early infant mortality is in large measure preventable. Among the causes of these deaths he assigns, in their order of prominence, the following: (1) enormous differences existing at the time of birth; (2) the varying prevalence of syphilis in different circles, the rate from syphilis in illegitimate children being eight times as great as that for legitimate infants; (3) inadequacy of the care of the health of mothers in the interest of preventing stillbirths; (4) the lack of care for unmarried mothers and for their infants; and (5) the variations in the incidence of sickness and deaths of mothers during pregnancy and child bearing.

In his survey of possibilities of improvement, Sir Arthur makes a number of practical suggestions as to what it is desirable for public health authorities to do generally in order to enable every mother and infant to have the best care which modern medicine renders available. The first and most essential feature he takes to be continuity of supervision, this to be provided through ante- and post-natal clinics and skillful care during parturition, a raised standard of midwifery practice, and further research in ante-natal pathology. No social work is so certain to give immediate results in the saving of maternal and child life, in reducing invalidism of mothers, and in enhancing the national welfare as the immediate provision in every area throughout the country of maternity homes and hospitals for a considerable proportion of normal confinements and for the majority of complicated cases.

STANDARD ANESTHESIA RECORD

As a part of their program seeking better methods, and promoting better practice by anesthetists throughout the country, the National Research Society has designed a chart which is considered to embrace all essential points in the administration of an anesthetic and to leave such a record as will speedily show the surgeon, anesthetist, and nurse the history of their case. This chart has been designed to show what happens to the patient and how he reacts to the various factors that bear upon his case. Detailed records of this nature have been all too few, and


ANAESTHESIA RECORD
Flower Hospital Cleveland City Ohio State
No. 210 WARD C DATE 9/10/1920.
NAME Sarah Jones AGE 60
OPERATION PROPOSED Wertheim operation for Carcinoma Ut
PHYS CAL FINDINGS NORMAL EXCEPT Surgical condition
PRELIMINARY HYPNOTIC Morphine & Hyoscine DOSE 1/6 - 1/150 TIME OF ADMIN 7 AM
HOUR A M 8 9 10
ANESTHETIC Nitrous Oxid-Ox. Ether TECHNIC Combined AMOUNT E 3iv
SURGEON C.W. Smith ANESTHETIST A.L. Brown
OPERATION Wertheim operation for Carcinoma Uterus
REGAINED CONSCIOUSNESS AT 10:55 AM CLOCK
Satisfactory narcosis
CONVALESCENCE NORMAL EXCEPT FOR

A chart of this kind, properly filled out, affords all the information one needs to have about the way a patient reacts to an anesthetic.

the requirement of such records will stimulate better work on the part of all.

The chart was devised after studying and comparing charts from all leading hospitals and clinics of the United States by a committee consisting of Drs. A. H. Miller, Providence; E. I. McKesson, Toledo; and A. F. Erdmann, Brooklyn.

BRITISH MACE TO AMERICAN COLLEGE OF SURGEONS

THE opening of the Clinical Congress of the American College of Surgeons, which took place on the evening of October 11 in Montreal, was made the occasion for the formal presentation to the American surgeons of a silver mace as a demonstration of international amity, and of the formal appreciation of the services of American surgeons during the world war. The presentation was made by Sir Berkeley Moynihan, C.B., M.S., F.R.C.S., of Leeds, England, supported by two colleagues, Sir William Taylor, C.B., of Dublin, Ireland and Mr. Albert Carless, C.B.E., F.R.C.S., of London, England. The mace is inscribed: "From the Consulting Surgeons of the British Armies, to the American College of Surgeons, in memory of mutual work and good fellowship in the Great War, 1914-1918."

The symbolic message was worked out most successfully by Omar Ramsden, whose handicraft is widely known. Hand wrought, in silver gilt, with chiseled and repoussé work, the mace is designed along traditional lines and proportions of the civic British mace of the Seventeenth Century. The rod upon which the mace is built is of British oak, taken from a tree more than a thousand years old, at Wytham, in Berkshire. The stand upon which it rests is oak from the same tree. The main body or head of the mace is separated in six panels by the Winged Caduceus, an ornamental version of the badge of the United States Army Medical Corps, and each of these panels is choicely engraved in delicate and detailed repoussé work presenting the full Blazon of the United States of America, the Dominion of Canada, the Royal College of Surgeons of England, the badge of the Royal Army Medical Corps, the shields of arms of John Hunter and Lord Lister, Britain's two greatest surgeons, and a cartouche bearing the words "Philip Syng Physich, 1768-1837, Father of American Surgery."

On the lower portion of the head is to be found a band symbolically representing water and indicating the broad ocean that both separates and unites the United States and the Mother Country, the latter being symbolized by brackets in the form of British lions, beautifully chiseled, and supporting the head and terminating the upper portion of the staff, the claws of their feet gripping a hammered decoration which is designed to represent American and Canadian maple seed pods and heart shaped spaces, all protected by solid, jewel like bosses of exquisite chiseled work.

The staff itself is also symbolically engraved with a fine design embracing the national floral emblems of the United Kingdom—rose, thistle, shamrock and leek, and entwined among these are numerous ribbon scrolls upon which are engraved the names of the donors of the mace.

Three feet eleven and one-eighth inches long, and weighing 140 ounces Troy, this beautiful example of antiquarian and heraldic work embodies in the designs briefly recounted above a message of good will, good fellowship and spiritual ties that bind together British and American hearts. As Sir Berkeley Moynihan himself puts it: "We do want to visualize in permanent and enduring form the ties, both physical and spiritual, that link the English-speaking peoples of the world. We are one spiritually, and in this mace we have tried to give expression to that faith and that belief.

"On the fields of Flanders and France, Humanity recovered its rights. In the grave and anxious days of war no friendships were deeper or more intimate, no joint labors more fruitful than those which took place between the members of the profession of America and of every part of the British Empire. We then gained each for the other not respect and sympathy alone, but true affection also. Every lover of his own country and every lover of humanity must wish that the spiritual alliance thus created shall endure to the end of time. In our desire to perpetuate the memory of those days of duty done together, we, the representatives of the Consultant Surgeons attached to the British Army during the war, ask you, the American College of Surgeons, here in session in one of our great Dominions, to accept this mace as a symbol of our union in hard days of trial, as a pledge of our devotion to the same imperishable ideas, and as a witness to our unfaltering and unchanging hope that between the professions of these countries there may exist a brotherhood forever in the service of mankind."

The President, Dr. Armstrong, responding, said:

"I accept this beautiful mace, presented by you on behalf of the Consultant Surgeons of England, with thanks and with full appreciation of the care and thought bestowed upon its design and construction. We accept it as a token of the cordial relationship that obtained between the surgeons of the two great nations here represented. It is a symbol of the zeal and enthusiasm, in our art, which, arising in the Old World, has spread to the New World, and we shall endeavor on this western hemisphere to keep the sacred flame of science burning not less brightly as did our forebears in Great Britain. It will remain with us as an emblem of unity, a work of art, a remembrance of the great effort of the two great English-speaking nations to give truth, liberty and justice to all peoples and to all nations. The scientific fire presented in this gift welds another link in the chain that binds us forever in united effort to promote the highest possible standard of surgery, as well as peace and good will among men."

At the conclusion of the session the members of the American College of Surgeons were given a brief insight into the stately methods of the older institutions of learning, when the mace bearer, in the khaki of a British medical officer, shouldered the newly presented brazen emblem of authority, and the gowned and hooded authorities of the college, preceded by the mace, left the auditorium in processional form, with the dignitaries on the platform.

HEALTH IN INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

PSYCHOLOGY OF INDUSTRIAL LIFE

OF COURSE, psychology enters largely into industrial life, and in order to have a healthy and contented body of workers they must be studied from the psychological aspect and as far as possible their need and idiosyncrasies complied with. These facts are beginning to be recognized in this country and, as evidence of this growing comprehension on the part of scientific, medical, and practical men, the Section of Psychology at the meeting of the British Association held in Cardiff, Wales, during the week commencing August 23 last was perhaps the most popular of all the sections. Several papers of peculiar interest were read. Among these was one by Mr. F. Watts who, dealing with problems of vocational selection, said that an indispensable preliminary to the correct psychography of vocations, without which vocational selection could take place only in an unscientific fashion, was the determination of the relations between general ability and the specific aptitudes called for in the performance of particular tasks. Until the psychography of various industrial occupations had been successfully accomplished, it would be advisable to construct vocational tests in such a way as to produce the mental conditions of the work for which it was attempted to diagnose fitness. So far, the vocational psychologist had attempted to proceed on the assumption that intellectual qualifications alone decided vocational fitness, but an analysis was desirable which would take other factors into account.

Mr. S. Wyatt read an extremely illuminative paper on "The Psychology of Industrial Life," in which he narrated the results of observations made during an investigation of the cotton industry under the auspices of the Industrial Fatigue Research Board. He pointed out that, as a rule, it was found that the operative was highly suspicious of any change in the industrial environment, especially when the cause of the change was the employer. Speaking of the different processes carried on in the industry, Mr. Wyatt said that though it was probable that a certain amount of monotony exists in weaving, in no other occupation of any importance had the female worker the satisfaction of so completely transforming the raw material into the finished product. The numerous stoppages of the looms, together with the noise in the weaving shed, kept the weaver at her loom and made sustained conversation impossible. The least distraction was welcome. Unconscious efforts to relieve monotony seemed to be expressed in the amount of hair-dressing which took place in the sheds. An interesting feature of life in the weaving shed was the sympathy and cooperation which existed between the operatives. Whenever a weaver had an unusual number of breakages in the cloth she was producing, the operatives in her immediate vicinity immediately came to her assistance. The more skilled workers were always willing to help the less skilled. The speaker said that discontent was much more noticeable among men workers than among women workers. Another speaker made the apt remark that the monotony of a process must be considered in relation to the capacity of the worker. A worker might be content with a monotonous process from lack of initiative.

Professor E. L. Collis, who, by the way, has just published a very able work dealing with various phases of industry from the medical, hygienic, and psychological standpoints, read the chief paper of the Section, the paper being entitled the "Psychology of Industrial Convalescence." He said in part, that the nation had recognized the need for dealing with convalescing disabled soldiers. The most successful treatment had been found to be that with an occupational objective, the reason being that occupational therapy was practical and largely psychological. What was only just coming within the realms of national conscious thought was that for many years industry had been providing and would continue to provide as many disabled persons as did the war. Experience with disabled soldiers had demonstrated how few disabilities were sufficiently serious to cast a worker upon the industrial dust heap. The strain of industrial life in peace time was just as productive of neurasthenia—machine shock if they choose so to call it—as the conditions of active military service. Industry could be made a unique therapeutic agent; what was required was a hair from the dog that did the biting. Industrial neurasthenia played an important part in every illness which befell a worker, whether due to accident or disease. Such a worker required confidence in the future to enable him to resist the onset of illness or to enable him to recover. This confidence could be created only by the master he served, industry. The size and complexity of industrial concerns made the duty of creating this confidence a matter to be delegated by the firm to a special branch of management containing within its personnel medical and social experts.

Referring to particular types of cases, he suggested that a worker who was recovering from injury should have his convalescence facilitated by readmission to work for part time under medical supervision. Then there was to be considered the case of the loss of a limb. Men crippled in the war were fitted with artificial limbs, taught to use them, and encouraged to learn a new occupation. He submitted that a moral obligation rested with industry to finance treatment on these lines. Industry ought to provide means for industrial convalescence. What might be hoped for was that the dominant industry of each district would be developed at each place, rather

than an effort to develop indiscriminately. Then, convalescing skilled workers from one district could, if necessary, be transferred to their own special trade carried on in another. In the Physiological Section of the same meeting Dr. F. S. Lee, professor of physiology in Columbia University and consulting physiologist to the United States Public Health Service, dealt with "Some Phenomena of Industrial Fatigue." He pointed out that the hourly output in physiological operations was practically always increased by a diminution of hours, but the effect on the total output depended on the balance between increased productive power and lessened hours of work.

In the very severe tasks of the millmen in the tinplate manufacture Vernon found the total output to be 8.3 per cent greater in the six hour than in eight hour shift. But this lent no support to the argument for a universal six hours day. What period, indeed, represented the most nearly universal optimum for a working day was still an open question. A comparison of the diurnal curves of the output of the eight and ten hour factories investigated by the Public Health Service showed that a conspicuous feature of work on the eight hour plan was its steady maintenance of output in contrast to the fluctuations of output of the ten hour plan. Each added contribution of observation and experiment appeared more and more to support the view that from the standpoint of physiological essentials the optimum working period was comparatively short, but varied in duration with the kind of work performed. Eight hours was probably too long for certain kinds of work and too short for others. A universal eight hour day would be unscientific. Recess periods during the working spell nearly always resulted in increased hourly output and frequently in increased output for the whole day.

LONDON CORRESPONDENT.

PREVENTABLE LOSSES IN CASUALTY INSURANCE

BY JOHN C. A. GERSTER, M.D., NEW YORK CITY

DURING the past two years experience as surgeon to a hospital for the re-education of industrially crippled, and as surgical advisor to a casualty insurance company, the author has been repeatedly impressed with the amount of unnecessary and readily preventable disability encountered in the course of his daily work. In the field of fractures alone enormous aggregates have been paid out for disabilities which might have been easily prevented under different management on the part of the companies themselves.

Expert Buying of Surgery

In striking contrast to the policy of life insurance companies which make it a point to keep abreast with scientific medical progress affecting their interests, the casualty insurance companies as a body have gone on their way unheeding the common basic principles of accepted surgical practice as applied to their own field. With minor exceptions here and there, the great surgical advances made in the last war have gone unheeded, with the result that, through a faulty system of claim management, fingers, hands, arms, and legs have been permanently disabled, and have had to be compensated for by insurance companies. Why? Because of their failure to appoint *expert buyers* for the commodity, surgical treatment. However capable he may be, certainly no claim agent can have expert surgical experience; and yet his superiors have deputed to him the purchase of surgical services. He is saddled with an unfair responsibility and must muddle through the best way he can. How does this work out? On the one hand, just bills for good work are often questioned; while on the other, in the payment of surgical bills sometimes representing poor work, carefully itemized bills are passed because of their appeal to the non-professional mind. In paying for surgical work not a thought is given as to whether the amount paid corresponds to the time consumed and skill displayed:—yet upon these two factors depends the whole problem. In a recent series of 220 healed simple fractures of the extremities with marked disability, referred to an industrial rehabilitation hospital for possible improvement, the vast majority of the cases showed readily preventable deformities. In other words, these deformities represented a vast sum paid out for preventable disability. Until casualty insurance companies make it their business to see that their injured receive up-to-date surgical treatment within two or three hours after injury, they will continue to pay about twice as much as they should for disability following injury.

The surgical experiences of the great war have shown the following basic truths:

(1) That infection can be controlled and often absolutely prevented if contaminated wounds receive proper surgical treatment within eight hours after injury.

(2) That, if a surgeon fails to obtain good results with the Carrel-Dakin treatment, the fault is with himself, not with the method. There *are* surgeons who *do* obtain good results with this method.

(3) That fractures are emergency conditions requiring prompt reduction at the earliest possible moment after they have been received. It is better practice to reduce a fracture as well as one can without the use of the x-ray than to let it alone and wait until an x-ray has been taken if such delay entails the loss of several hours.

(4) That in many cases the suspension and traction method for fractures of the extremities gives in minimum time a good function with no shortening. At one hospital with a large fracture service patients with fractured femurs begin walking at the end of thirteen weeks under this method. Naturally, it takes somewhat longer than this before they can walk without a limp.

(5) That divided tendons and nerves must be immediately repaired.

What Results to Demand

These are only a few of the self-evident surgical principles upon which claims departments should base their system of administration. Have any claims departments done this? Are there any which make provision for routine telephonic reports as soon as accidents have occurred? Are there any that provide surgical consultants to aid those surgeons doing casualty insurance work who have not had the benefit of experience in war surgery? Are there any claims departments that realize that a result that shows little or no shortening in simple fractures of the long bones, plus at least 75 per cent of normal joint motion can be demanded from the surgeon provided he receives the case in time? Are there any

that classify their results, and from a study of this classification seek to improve methods employed in administration or treatment? Is there a medical intelligence department that keeps track of the injured man from the time he is hurt until he is well? If there is, the matter has not been reported.

Do the casualty insurance companies realize what they have a right to expect from the hospitals to which they send their injured for treatment? Do they realize they can demand the same efficient service which obtained in certain army casualty clearing stations during times of relative quiet at the front? That x-ray men as well as surgeons should be on emergency call? That the x-ray room should be close to the operating room? That portable x-ray machines should be used for control of fractures treated by suspension and traction? That inexperienced interns should not be permitted to repair divided tendons in poorly equipped accident wards? That if these requisites are not provided, the hospital's trustees can be asked by what right their institutions accept cases for which adequate facilities have not been provided? Should local hospitals not prove amenable to constructive criticism, then it might be considered whether industry itself could not undertake increasing industrial human salvage by the organization, equipment, and management of large hospital centers with related dressing stations throughout the country; the personnel of these centers to include leaders in medicine and surgery.

How can the companies know what sort of surgical service they are paying for unless they employ an expert to advise them? It takes fifteen years to make a surgeon, and yet they expect their claims men—familiar with accidents but not with surgery—to sit in judgment, to pass on the quality of surgical service, to estimate technical ability, to hire and fire as they see fit. There result losses, the extent of which is not even suspected.

Let us review a glaring example of unnecessary loss which occurred a short time ago. A man with a simple fracture of the shaft of the femur, improperly treated, at the end of four months showed a shortening of two and three-fourths inches, angulation at the site of the fracture, a stiff knee, and a stiff hip. In addition to the condition of his lower limb he would be likely to develop spinal curvature unless he wore a high soled shoe for the rest of his life. Any claims man knows what compensation such a limb carries; yet what claims department would not look with horror upon a bill of three hundred to five hundred dollars for surgical treatment of this condition which would prevent shortening and result in good joint function? One can hear the exclamation: "But we cannot afford to pay such high prices!" Yet in that department no more than a casual regret would be expressed at paying $5,000 and upwards for the disabling deformity just described, which could have been prevented. In other words, according to present methods, they cannot spent $1,000 for surgeons and hospital expenses to effect a saving of at least $4,000 in disability claims.

Report System too Slow

Reports of accidents come in by mail. What chance is there to see about immediate treatment? To prevent infection? To set the broken bones before swelling sets in? Immediately to provide, in graver injuries, expert consultants to share responsibility with less experienced men? By the time the reports are received, the time for preventive surgery has gone by.

Let us take an example of how this failure to keep track of the injured leads to needless crippling. A chambermaid in one of the larger New York hotels sustained a Colles' fracture of the wrist. The fracture was immediately and properly set by a well known surgeon. The hotel then refused to give her further shelter, their rules not allowing sick servants to be kept on the premises. They sent her to a hospital, where she was informed that their rules prevented admission of ambulant fracture cases—an entirely proper regulation in itself—and so she wandered around for five weeks without any surgical supervision. By merest chance she came under the notice of the author in the accident ward of a hospital with which he is connected. Inquiries were made and she was promptly sent down to the casualty insurance company liable for her case. Her hands and fingers had stiffened and months of treatment were ahead of her if she was to regain any function whatever, this because that particular company had failed to keep track of her case and to bring her under timely and proper surgical after-care. Their own chief surgeon is a skillful man, but she was not brought to him in time.

The blame for this loss rested entirely on the claims department, or on the higher executives if they did not permit the claims department freedom in this matter. Yet, under the present system, with surgeons answerable to the claims department only, the knowledge of such losses is likely never to reach those in higher control, and recurrence of such errors will not be prevented in the future unless the prevailing system is changed.

The evils of the present system can be promptly and economically eliminated by the creation of a surgical department working in closest harmony and cooperation with the claims department, the heads of both departments being directly responsible to the chief executive of the company. Claims and medical departments will then act as checks upon each other, and the higher officers will know more about what is going on and where improvements may be inaugurated. The chief of such a surgical department should be a general surgeon in active practice. Without active hospital work, he would rapidly lose touch with progress in his specialty, fall behind, and soon cease to be of value to the company. The chief surgeon should have a reputation for high professional capacity and integrity among his own fellow specialists. It is safe to assume that such a man would be able to choose assistants of first rate professional caliber, who are to do the bulk of the routine work. These assistants should be men who have had hospital training as interns on the surgical service and should have good records for such service. They should be part time men. Being a full time man saps initiative, prevents a man from keeping up with his profession, keeps him from operative work and denies him the education of private practice. He has no opportunity for study or study travel. The assistant is the potential successor to his chief, hence he should be encouraged to improve himself so that he may in time qualify for the executive position. In the author's experience better work comes from several part time men of promise than from a fewer full time men. The same report has been made by others.

The chief object of the surgical department is to make sure that the injured man is receiving proper treatment from the hour of his injury until he is cured. This implies:

(1) *Reporting by telephone of accidents*, ascertaining exact nature of injury, authorizing transportation, diagnostic measures, form of treatment, and consultation with specialists.

(2) *Maintaining a daily follow-up system*, especially with reference to a reminder file regarding voluntary

motion at the earliest possible moment conducive with safety. Failure to start early motion at the right time is the greatest factor causing loss of function in fractures and hand infections.

(3) *Supervising of medical bills from outlying districts.*—The outside surgeon must render a concise statement of the original injury, the treatment and course of cure, together with the final result. The company paying him is entitled to a knowledge of these facts.

(4) *Analyzing of results.*—Cases of preventable disability to be subject of weekly or fortnightly conferences with claims and executive departments to ascertain means for correction of underlying causes.

Educational Measures Employed

I.—Surgical information should be disseminated for the guidance of claims departments, generalizing procedure in given conditions, as

(1) *Every fracture is to be regarded as an emergency and should be reduced as soon as possible.* (Reduction is infinitely easier before swelling takes place than after the lapse of even a few hours.)

(2) *Compound fractures may often be converted into simple fractures* if proper surgical treatment is applied within six to eight hours from the time of injury. It is recommended that Thomas splints be used in transporting patients suffering from fractures of the thigh and leg from plant to hospital. In the American Expeditionary Forces laymen were readily instructed in the proper application of Thomas splints and the positions they obtained were often so satisfactory that in a large percentage of cases further correction was unnecessary.

(3) *So-called contusions of the hip should be x-rayed.* Patients have been known to walk (limp) even a mile or two after fracture, and for this reason have been allowed to go months without diagnosis or treatment.

(4) *Infection of the hand* can often be prevented by prompt application of tincture of iodin. The experience of Mock with the mail order department of Sears, Roebuck & Co. shows what can be done in this direction by furnishing each desk with a small bottle of iodin, and a clearly worked out card of printed instructions. By such simple means as this the reduction in finger infection was more than 80 per cent. *Early diagnosis* minimizes the ravages of hand infections. Kanavel's textbook may be followed implicitly.

(5) *Divided tendons. In wounds of the fingers, the palm, or near the wrist* divided tendons can be diagnosed by requesting the patient to open and close the hand. Failure of complete motion indicates the necessity for immediate surgical attention. It not infrequently occurs that in cases of small incised wounds the physician merely sutures the skin and fails to recognize the more important injury to the underlying tendons.

II.—*Information may be supplied to employees* regarding certain common injuries and infections and what they mean, what surgery holds out to them—what they may expect; what risks they run from self-treatment or neglect. These pertinent matters can be printed in bulletin form to be posted at conspicuous points in factories and offices.

III.—*Education of employers* should include: what surgical neglect costs them; what surgical care saves them. A few typical examples will drive home the argument that nurses cannot replace doctors in treating minor injuries. The loss of a few fingers every year more than offsets this saving in salaries.

STATISTICAL REVIEW OF DISABILITY IN THE WORKMEN'S CIRCLE

By GEORGE RUBIN, Statistician, and JOSEPH BASKIN, General Secretary, New York City

THIS article is based upon data reached by a careful study of the experience of the Workmen's Circle through sick benefits paid to its disabled members. The Workmen's Circle is a fraternal organization counting about eighty-two thousand members and 642 branches distributed throughout the United States and Canada.

From the very nature of its name it is clear that this organization consists chiefly of workmen among whom it also counts about 10 per cent of business men and 1 per cent of housewives who also occupy a prominent place in relation to rates in the drawing of sick benefits.

According to the nature of the work the membership has been divided into twenty-one classes of occupation, including housewives and the class termed "Other Occupations," which includes those who cannot be separately classified because they constitute a small fraction of 1 per cent of the entire membership and also because in some cases the occupations are not known. From this classification is excluded a group of housewives belonging to as what is known class Number 3, because the members of this class are entitled to life insurance only and not to sick benefits. For the purpose of this analysis we are confining ourselves only to members insured against disability.

Provided that the nature of the cause of disability is the same, this organization pays benefits during three consecutive years and only for a period of fifteen weeks during each year at a rate of $6.00 per week during the first year and $3.00 during the second and third years.

According to our records about 97 per cent of the disabled drew benefits from one to fourteen weeks in one year, while only about 3 per cent drew for the full fifteen weeks, although it may be possible that some of the latter were disabled for a longer period, but owing to the fact that the percentage of such cases was very small, their effect on the disability calculations is negligible. Sick benefits are paid for not less than a complete week, beginning with the day on which the disability is reported. Because no benefits are being paid for a fraction of a week no records of disability of such durations are kept, but this defect is fairly counterbalanced by the inclusion into the period of our calculation the two epidemic years of 1918-19, which considerably increased the number of disability cases.

Age and Disability

The result reached by research covering a period of four years (1916-1919) is shown in Table I.

The average annual number of disability days begins with 2 for the age group of 18-19 and increases gradually

TABLE I.- ANNUAL AVERAGE NUMBER OF DISABILITY DAYS PER MEMBER AND PER DISABLED MEMBER OF EACH CLASSIFIED FIVE YEAR AGE GROUP

AGE GROUP	Total No. of Disability Days	Total No. of Members Affected	Total No. of Disabled Members	Annual Average No. of Disability Days per member	Annual No. of Disability Days per Disabled Member
18 and 19	2,065	1,029	107	2.01	19.30
20 to 24	82,299	25,703	3,880	3.20	21.21
25 to 29	209,538	57,967	9,585	3.61	21.86
30 to 34	241,185	65,771	10,725	3.67	22.49
35 to 39	173,362	44,171	7,097	3.92	24.44
40 to 44	101,122	20,747	3,739	4.87	27.04
45 to 49	39,928	6,973	1,329	5.73	30.04
50 to 54	8,337	1,713	288	4.87	28.94
55 to 59	1,071	209	38	5.12	28.18
Total	858,907	224,283	36,788	3.83	23.34

TABLE III.- RELATIVE DISABILITY RESPONSIBILITY OF EACH CLASSIFIED FIVE YEAR AGE GROUP

AGE GROUP	Total No. of Members	Per Cent of total Membership	Total No. of Disabled Members	Per Cent of entire Membership	Total No. of Disability Days	Per Cent of entire Membership
18 and 19	1,029	0.46	107	0.29	2,065	0.24
20 to 24	25,703	11.46	3,880	10.55	82,299	9.58
25 to 29	57,967	25.85	9,586	26.05	209,538	24.40
30 to 34	65,771	29.33	10,725	29.15	241,185	28.08
35 to 39	44,171	19.69	7,097	19.29	173,362	20.18
40 to 44	20,747	9.25	3,739	10.16	101,122	11.78
45 to 49	6,973	3.11	1,329	3.61	39,928	4.65
50 to 54	1,713	0.76	288	0.79	8,337	0.97
55 to 59	209	0.09	38	0.11	1,071	0.12
Total	224,283	100.	36,788	100.0	858,907	100.0

until it reaches a maximum of 5.73 for the age group 44-49. In the group 50-59 there is some variation. Both of these constitute only about 0.8 of 1 per cent of the membership and therefore are not of a very considerable importance in the relation to calculations.

TABLE II.- PER CENT DEVIATION OF DISABILITY DAYS OF EACH INDICATED AGE GROUP FROM AVERAGE NUMBER OF DISABILITY DAYS FOR ALL AGES (Average disability days for all ages - 100)

AGE GROUP	Per Member: Average No. of Disability Days	Per Member: Per-Cent Deviation from Average of all indicated age groups	Per Disabled Member: Average No. of Disability Days	Per Disabled Member: Per-Cent Deviation from Average of all indicated age groups
18 and 19	2.01	-47.52	19.30	-17.31
20 to 24	3.20	-16.45	21.21	- 9.12
25 to 29	3.61	- 5.74	21.86	- 6.34
30 to 34	3.67	- 4.17	22.49	- 3.64
35 to 39	3.92	+ 2.35	24.42	+ 4.63
40 to 44	4.87	+27.15	27.04	+15.85
45 to 49	5.73	+49.61	30.04	+28.71
50 to 54	4.87	+27.15	28.94	+23.99
55 to 59	5.12	+33.68	28.18	+20.63
Average, all age groups.	3.83	-- --	23.34	-- --

The purpose of Table II is to show the influence of the age as a factor upon disability. On the 100 per cent basis, the percentage of deviations up to the group of 30-34 is negative, that is, the average number of disability days of each of those groups is less than the general average. From the group 35-39 the deviations are positive, *i. e.*, the average number of disability days per member of these groups is more than the general average. The general number of disability days per member is probably to be looked for in the ages 34-36 because of the fact that the average age of the entire membership of this organization is 33. Charts I and II set up more clearly the illustrations contained in Tables I and II, respectively.

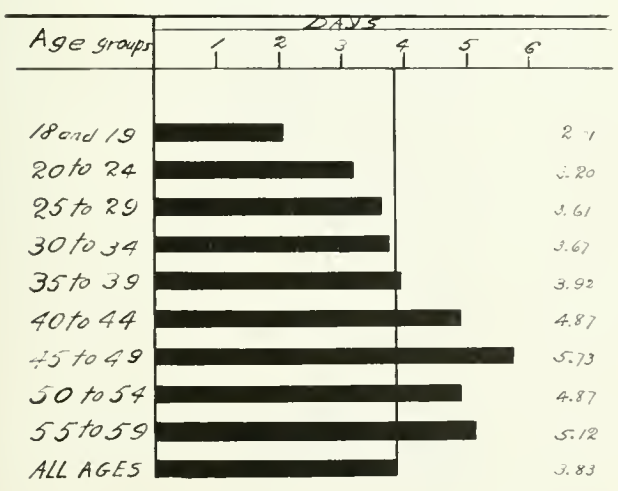


Chart I. Average number of disability days per member, all occupations, by age groups.

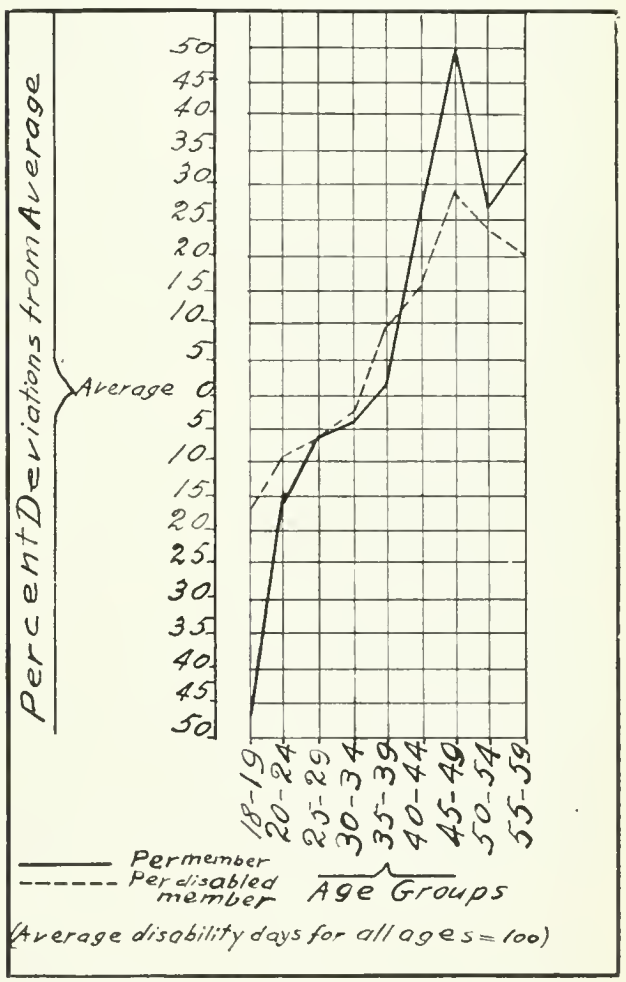


Chart II. Per cent deviations of disability days of indicated age groups from the average number of disability days for all age groups.

TABLE IV.- ANNUAL NUMBER OF DISABILITY DAYS PER MEMBER AND DISABLED MEMBER OF EACH OCCUPATION OF ALL AGE GROUPS (16-59)

OCCUPATION	Total number of members concerned	Total number of disabled members	Total number of disability days	Annual number of disability days per member	Annual number of disability days per disabled member
Housewives	2,001	745	17,248	8.62	23.14
Laborers	11,337	3,488	67,074	5.92	19.23
Bakers	7,165	2,097	40,327	5.63	19.23
Machinists	7,800	1,973	41,391	5.31	20.98
Painters	19,666	6,146	100,966	5.13	19.62
Bricklayers	2,963	736	14,777	5.00	20.08
Carpenters	27,786	6,645	131,733	4.78	19.82
Metal Workers	17,441	4,101	81,984	4.70	19.99
Shoemakers	7,256	1,541	34,033	4.70	22.13
Pressers	10,524	2,209	48,692	4.63	22.04
Businessmen	37,485	7,608	159,222	4.25	20.91
Cigar Makers	6,904	1,175	24,563	4.16	20.90
Clerks	18,256	3,171	70,217	3.81	22.14
Leather Workers	3,483	647	13,013	3.74	20.11
Weavers	6,872	1,265	26,123	3.66	19.86
Operators	38,426	6,847	135,254	3.52	19.75
Tailors	69,182	11,641	243,341	3.52	20.90
Printers	2,828	489	9,597	3.39	19.61
Furriers	3,798	637	12,698	3.34	19.92
Cutters	8,099	1,245	25,725	3.18	20.65
Other Occupations	36,206	2,947	64,596	1.78	20.92
	344,467	66,352	1,361,626	3.95	20.5[illegible]

TABLE V.- PER CENT OF DEVIATION OF AVERAGE ANNUAL DISABILITY DAYS OF EACH INDICATED OCCUPATION FROM THE AVERAGE ANNUAL DISABILITY DAYS OF ALL OCCUPATIONS

OCCUPATION	Per Member: Average annual number of disability days	Per Member: Per Cent deviation from average of all occupations	Per Disabled Member: Annual number of disability days	Per Disabled Member: Per Cent deviation from average of all occupations
Housewives	8.62	+118.2	23.14	+12.3
Laborers	5.92	+ 49.4	19.23	- 6.2
Bakers	5.63	+ 42.5	19.23	- 6.2
Machinists	5.31	+ 34.4	20.98	+ 2.2
Painters	5.13	+ 29.9	19.62	- 4.4
Bricklayers	5.00	+ 26.6	20.08	- 2.1
Carpenters	4.78	+ 21.0	19.82	- 3.4
Metal Workers	4.70	+ 19.0	19.99	- 2.5
Shoe Makers	4.70	+ 19.0	22.13	+ 7.8
Pressers	4.63	+ 17.2	22.04	+ 7.4
Businessmen	4.25	+ 7.6	20.91	+ 1.9
Cigar Makers	4.16	+ 5.3	20.90	+ 1.9
Clerks	3.81	- 3.5	22.14	+ 7.9
Leather Workers	3.74	- 5.4	20.11	- 2.0
Weavers	3.66	- 7.3	19.86	- 2.2
Operators	3.52	- 10.9	19.75	- 3.8
Tailors	3.52	- 10.9	20.90	+ 1.8
Printers	3.39	- 14.2	19.61	- 4.4
Furriers	3.34	- 16.4	19.92	- 2.9
Cutters	3.18	- 19.5	20.65	- 0.6
Other Occupations	1.78	- 54.9	20.92	- 1.9
Average, all occupations	3.95	- -	20.[illegible]	- -

We have attempted to show in Table III the relative disability responsibility by comparing it with the strength of the various age groups. In the groups up to 30-34 the responsibility is less than the strength (columns two and six) because the disability responsibility is less than the average for those age groups, while for the others the disability responsibility is more than the strength.

The variation of the percentage of disabled members is approximately the same as the percentage of the membership.

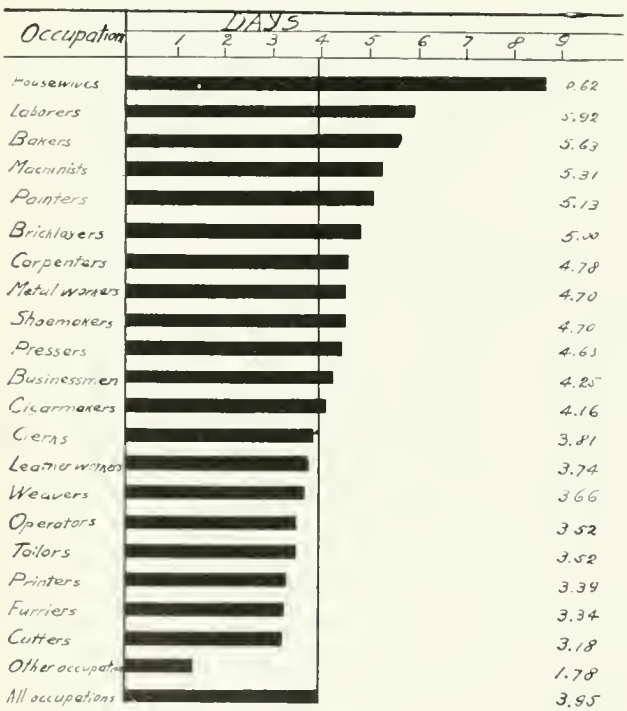


Chart III. Average annual disability days for each occupation, all ages.

Disability by Occupation

Occupation is undoubtedly an important factor in disability. Table IV shows the result reached by researches covering a period of seven years (1913-1919) and is supplemented by Chart III. Disability classed according to occupation is shown in order of magnitude, beginning with the greatest average and ending with the smallest. It appears that housewives constitute the highest annual average of disability days per member, a fact which cannot be explained by our records.

The deviation from the general average which is a measure of the effect of each occupation upon the health is shown in Table V. A negative deviation means a lesser effect upon the health of the group, while a positive deviation shows a greater and more detrimental effect, the standard of comparisons used in all occupations and ages being 100 per cent.

Chart IV. Per cent of disabled members of each classified occupation, all age groups.

Table VI shows how far each occupation is relatively responsible for disability. A comparison of columns two

TABLE VI.- RELATIVE DISABILITY RESPONSIBILITY OF EACH CLASSIFIED OCCUPATION (ALL AGE GROUPS)

OCCUPATION	Total number of members	Per cent of total membership	Total number of disabled members	Per cent of entire membership	Per cent disabled members of each classified occupation	Total number of disability days	Per cent of entire membership
Housewives	2,001	0.58	745	1.12	37.2	17,246	1.27
Laborers	11,337	3.29	3,488	5.25	30.7	67,074	4.93
Bakers	7,165	2.08	2,097	3.16	29.2	40,327	2.96
Painters	19,665	5.70	5,145	7.77	26.2	100,966	7.42
Machinists	7,800	2.28	1,973	2.99	25.3	41,391	3.04
Bricklayers	2,953	0.86	736	1.11	24.9	14,777	1.08
Carpenters	27,785	8.06	6,645	10.01	23.9	131,733	9.68
Metal Workers	17,441	5.06	4,101	6.18	23.5	81,964	6.02
Shoe Makers	7,256	2.11	1,641	2.22	21.2	34,083	2.50
Pressers	10,524	3.05	2,209	3.33	21.0	48,692	3.58
Businessmen	27,486	10.88	7,608	11.46	20.3	159,222	11.69
Cigar Makers	5,904	1.71	1,175	1.77	19.9	24,563	1.80
Leather Workers	3,483	1.01	647	0.97	18.6	13,013	0.96
Weavers	6,872	2.00	1,265	1.91	18.4	25,123	1.85
Operators	38,426	11.16	6,847	10.32	17.8	135,254	9.93
Clerks	18,256	5.30	3,171	4.78	17.4	70,217	5.16
Printers	2,828	0.82	489	0.73	17.3	9,597	0.70
Tailors	69,182	20.08	11,641	17.54	16.8	243,341	17.87
Furriers	3,798	1.10	637	0.96	16.8	12,698	0.93
Cutters	8,099	2.35	1,245	1.88	15.4	25,725	1.89
Other Occupations	36,206	10.52	2,947	4.44	8.1	64,596	4.74
Total	344,467	100.0	66,352	100.0	19.3	1,361,626	100.0

and seven shows that the relative proportion of the two columns varies, for in some occupations the percentage is higher than the strength, which means more detriment to the health, while in those occupations where the strength is higher it means more detriment or risk. The percentage of disabled in column four of this table is approximately the same as the disability days. Column

TABLE VII.- ANNUAL NUMBER OF DISABILITY DAYS PER DISABLED MEMBER FOR EACH PARTICULAR SICKNESS (ALL AGES AND OCCUPATIONS)

NATURE OF SICKNESS	Total number of disabled members	Per Cent of entire membership	Total number of disability days	Per Cent of entire membership	Average number of disability days per disabled member	Total sick benefit paid for each disease	Per Cent of entire membership
Influenza	15,909	23.97	193,263	14.19	12.15	165,654	14.73
Injury	12,676	18.62	241,863	17.69	19.00	206,454	18.34
Infection (Surgical)	8,256	12.28	132,322	9.79	15.96	111,864	9.94
Digestive troubles	5,779	8.49	145,362	10.68	26.14	122,262	10.86
Rheumatism	4,192	6.16	85,946	6.32	20.50	71,967	6.39
Tonsilitis	2,718	6.46	41,426	3.04	11.14	35,487	3.15
Bronchitis	3,403	5.00	51,614	3.81	16.29	43,551	3.87
Tuberculosis	3,266	4,80	182,847	13.43	56.93	131,343	11.67
Nervous trouble	1,347	1.97	38,906	2.86	28.96	30,348	2.69
Hemorrhoids	1,130	1.66	22,204	1.63	19,70	18,966	1.69
Hernia	1,081	1.58	36,071	2.65	33.46	30,783	2.73
Nephritis	1,011	1.48	27,419	2.01	27.20	22,752	2.02
Pneumonia	870	1.25	28,301	2.08	32.60	24,216	2.16
Pleurisy	842	1.24	16,331	1.20	19.44	13,776	1.22
Eye trouble	801	1.17	15,512	1.14	19.44	12,726	1.13
Ear Trouble	620	0.92	14,938	1.10	23.98	12,732	1.13
Heart Trouble	503	0.74	17,178	1.26	34.08	13,461	1.19
Anemia	417	0.62	10,388	0.76	24.73	8,616	0.77
Asthma	260	0.41	6,265	0.46	22.38	5,031	0.44
Bone and Joint Disease	666	0.82	12,635	0.93	22.72	10,353	0.92
Paralysis	165	0.25	7,665	0.56	45.62	5,748	0.51
Skin Disease	149	0.22	3,374	0.23	22.95	2,863	0.26
Plumbism	107	0.16	2,968	0.22	28.27	2,484	0.22
Diabetes	81	0.12	3,101	0.23	36.92	2,424	0.22
Liver Trouble	81	0.12	2,730	0.21	32.50	2,310	0.20
Cancer and Tumor	73	0.11	3,564	0.26	51.20	3,009	.26
Bladder Trouble	151	0.22	4,613	0.34	30.07	3,789	0.33
Miscellaneous	630	0.78	12,600	0.92	21.13	10,800	0.96
Total	66,096	100.0	1,361,626	100.0	20.0	1,125,789	100.0

six shows the percentage of disabled members of each occupation and Chart IV graphically illustrates the result

Disability by Disease

In the section covered by Table VII is shown the effect of various diseases upon the members and the extent of disability. The percentage of disabled appears to be higher than that of any other group of cases due to accidents and lower in serious diseases. The percentage of disability days varies in no proportion with the number of disabled members. The average number of disability days per member varies according to the seriousness of the disease.

An attempt is made in Table VIII to show the average percentage of disabled members of the indicated occupations according to the various diseases. It is to be noted that the highest percentage of disabilities occurs under

TABLE VIII.- AVERAGE ANNUAL LIABILITY TO DIFFERENT DISEASES OF EACH INDICATED OCCUPATION

This table contains only those diseases which affected one per cent or more of one or several occupations.

OCCUPATION	Number of members concerned per year	Per cent of diseased members of each indicated occupation for each indicated disease: Bronchitis	Tuberculosis	Diseases of digestive organs	Tonsilitis	Heart Disease	Infection (Surgical)	Accidental injuries	Rheumatism	Influenza
Bakers	286	2.0	1.7	2.2	1.6	-	4.2	6.3	2.3	6.5
Bricklayers	422	1.4	-	2.4	1.2	-	4.0	5.5	2.0	5.4
Businessmen	5,365	1.0	-	1.8	1.0	-	2.2	3.9	1.5	4.7
Carpenters	2,969	1.0	-	1.5	1.1	-	3.9	6.5	1.5	5.1
Cigar Makers	843	1.1	1.2	1.8	1.3	-	2.7	2.4	1.8	5.1
Clerks	2,606	-	1.1	1.5	1.1	-	2.1	2.7	1.0	4.3
Cutters	1,157	-	1.0	1.3	1.1	-	1.8	2.0	-	3.5
Furriers	543	-	1.0	1.8	1.0	-	2.0	2.9	1.6	4.2
Housework	286	1.7	1.0	4.9	2.1	1.4	3.5	3.8	2.7	9.8
Laborers	1,619	1.4	-	2.4	1.3	-	3.6	9.6	2.0	6.2
Leather Workers	496	1.0	1.0	1.8	1.4	-	3.0	3.4	1.2	4.8
Machinists	1,114	1.2	1.1	1.9	1.2	-	2.7	7.8	1.5	5.0
Metal Workers	2,492	1.0	-	1.7	1.0	-	2.9	7.0	1.5	5.0
Painters	2,809	1.1	-	1.9	1.4	-	3.6	5.6	-	6.6
Pressers	1,503	1.3	1.4	2.0	1.3	-	2.5	2.7	1.7	4.9
Printers	404	-	-	1.5	1.4	-	2.0	3.2	-	4.0
Shoemakers	1,037	-	1.7	2.0	1.1	-	2.6	3.2	1.4	5.0
Tailors and Operators	15,273	1.0	1.0	1.7	1.1	-	2.0	2.2	-	4.6
Weavers	982	1.2	-	1.6	-	-	2.2	2.3	1.7	4.1
Other Occupations	5,172	-	-	-	-	-	-	1.4	-	2.0
Average	49,210	0.99	0.95	1.68	1.08	0.14	2.43	3.66	1.11	4.62

the classification of "Accidental Injuries," and that next in importance is the classification "Infections, Surgical." These two causes account for the greater percentage of the disabilities that affect the hard workers, involving close to 10 per cent of the groups made up of this class of members.

It is remarkable that the needle trades, contrary to the general expectation, were the least afflicted by tuberculosis, while the bakers and shoemakers furnished the greatest percentage of its prey. Under the class "Influenza" will be found the greatest percentage of disabled members, which fact is due to the epidemic years of 1918 and 1919.

FOR VICTIMS OF INDUSTRY

Industrial rehabilitation work, provision for which was made by a recent act of Congress, will be under the direction of Lewis H. Carris, former assistant commissioner of education in New Jersey. Mr. Carris will have supervisory control of the work as it is carried on by state boards of vocational education. He has been employed by the Federal Board since 1917. This Bureau makes possible reclamation on a large scale and proposes for industry the same restoration worked out for men disabled in military service.

SANITATION AND PELLAGRA INCIDENCE

The study instituted in the Spring of 1916 on the relation of various factors to pellagra incidence has just been completed and final report made in *Public Health Reports*, July 16, 1920. The survey of seven respective mill villages failed to reveal any consistent correlation between factors of sanitary importance and the incidence of pellagra, this result affording no support for the view which has been quite widely entertained in this country that pellagra is "an intestinal infection transmitted in much the same way as typhoid fever."

The new Officers of the National Safety Council, elected at the Ninth Annual Safety Council held in Milwaukee, September 27 to October 1, 1920.

NEW OFFICERS OF NATIONAL SAFETY COUNCIL

The National Safety Council, in its Ninth Annual Session, held in Milwaukee recently, elected to office the following men, reading from left to right: W. H. Frater, treasurer, National Safety Council; C. W. Price, general manager, National Safety Council; second vice-president, L. A. DeBlois, manager of Safety Section, E. I. du Pont de Nemours & Co., Wilmington, Del.; first vice-president, W. H. Cameron, secretary-treasurer, Workmen's Compensation Service Bureau, New York City; president, Charles P. Tolman, chief engineer, National Lead Company; third vice-president, W. E. Worth, assistant manager, Industrial Relations Department, International Harvester Company; fourth vice-president, J. A. Cartel, safety engineer, Carnegie Steel Company; Sidney J. Williams, secretary and chief engineer, National Safety Council.

On these men devolves the exacting task of carrying forward a movement which has been characterized by a phenomenal growth and a dynamic influence in an ever widening field of welfare work. The National Safety Council has succeeded in reducing hazardous industries to places of safety, in substituting a sane knowledge of conditions for haphazard chance, in popularizing the steady workmen with rational self-control instead of the dare-devil type who takes unnecessary risks, and in arousing among the several industries a competition for conservation replacing a needless waste of manpower.

In accomplishing these results the National Safety Council has furnished conclusive demonstration that it is necessary not only to put a plant in order, but the work of the safety man needs to be supplemented by human engineering; that accidents do not *happen*, but are the result of certain combinations of causative factors and follow curves that can be demonstrated for each industry; that certain types of men are prone to accident, just as men of certain physique are susceptible to disease; that no program of safety is adequate that does not consider all factors and serve equally the interests of the management and the men.

Educational measures on a large scale have been necessary with methods specially adapted to effect these changes. The laboratory has yielded its service, psychology has been properly applied, and scientific training of managers has been provided. The ultimate scope of the movement is limited only by the degree of popular interest and cooperation the Council is able to maintain.

AMERICAN HOSPITAL ASSOCIATION

The twenty-second annual convention of the American Hospital Association held on October 4 to 8 in Montreal was inspirational both in recent achievement and in prophetic elements as shown by the activities projected. The hospital as the center of the health activities of the community was the view elaborated in the administration problems discussed by Dr. Malcolm T. MacEachern, and in the public health program of the future as outlined by John A. Lapp. In all discussions the hospital was seen as the coordinating factor between the civil, economic, social, and scientific phases of community health activities.

The obligation of the hospital, first and foremost to the patient, formed the special burden of the paper by Dr. Frank Billings, president of the American Conference of Hospital Service. The extension of the scope of hospital service was nowhere in greater evidence than in the discussion of dispensary and out-patient service, led by Asa S. Bacon, superintendent of the Presbyterian Hospital, Chicago. The Bureau of Information of the American Association of Hospital Social Service Workers was especially well planned to supply consultants an organization training and education in departmental efficiency.

Officers were elected as follows: Louis R. Baldwin, M.D., president, University Hospital, Minneapolis, Minn.; George O'Hanlon, M.D., president-elect, superintendent, Bellevue Hospital, New York City; M. T. MacEachern, M.D., first vice-president, superintendent, General Hospital, Vancouver, Can.; L. G. Davidson, M.D., second vice-president, Baptist Memorial Hospital, Memphis, Tenn.; Miss Alice M. Gaggs, third vice-president, J. M. Norton Memorial Infirmary, Louisville, Ky.; Asa S. Bacon, re-elected treasurer, superintendent, Presbyterian Hospital, Chicago; A. R. Warner, M.D., re-elected secretary, American Hospital Association.

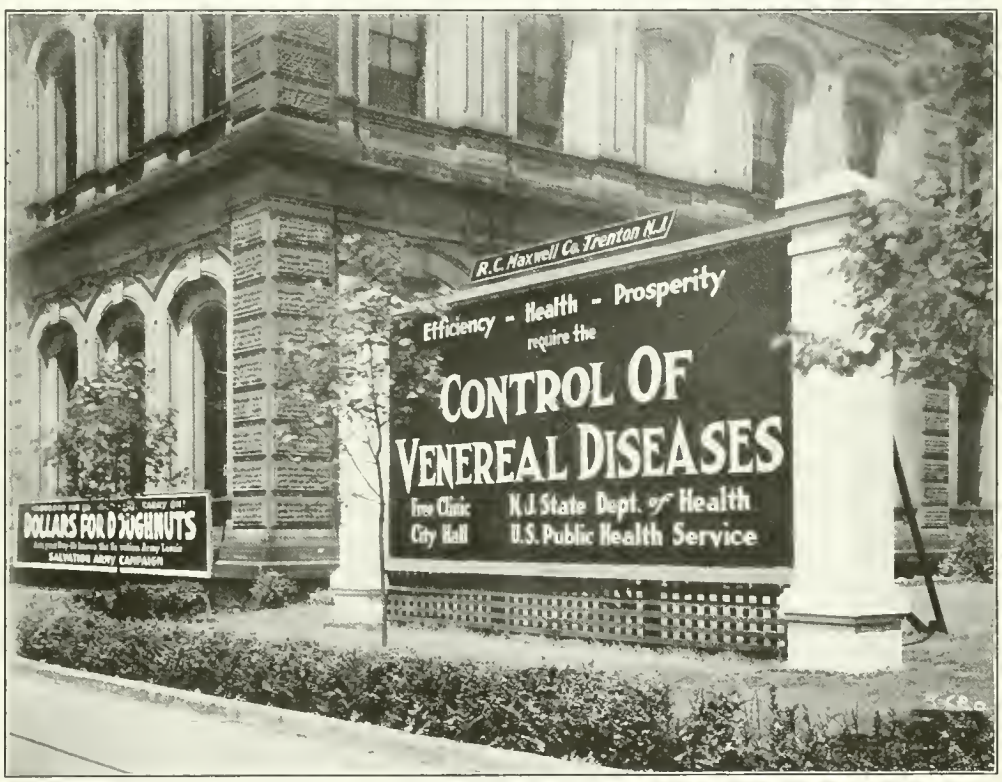
NEW JERSEY VENEREAL DISEASE BUREAU USES NOVEL PUBLICITY METHODS

By ALEC N. THOMSON, M.D., Director, Medical Department, American Social Hygiene Association, New York City

METHODS of publicity used by the Bureau of Venereal Disease Control of the State Department of Health of New Jersey include the most up to date devices for utilizing the "eye-gate" of its constituency. The publicity campaign consisted of the posting of educational placards, the distribution of educational pamphlets, the giving of educational lectures, accompanied, where possible, with approved motion pictures or stereopticon pictures on sex hygiene, and the exhibition of posters. It was realized that the education of the public in its broadest sense is a phase of the work of controlling this great menace to public health that brings the greatest returns, and to this end the organizations were enlisted to assist in the work by concentrating on the educational phase.

Subsequent to the usual conventional publicity campaign, the Bureau decided to branch out. Carefully worded advertisements were placed on four large billboards using "preferred space" in prominent locations in the city of Trenton.

Simultaneously the following innovations were tried: the placing of three cards about venereal disease in every street car in Trenton; the showing at every performance in each of twelve motion picture houses of Trenton of two or three slides about the campaign; the placing of a conspicuous notice in the two leading newspapers at Trenton, giving all necessary information in regard to the city clinic.



Example of advertising used in the venereal disease campaign, New Jersey.

Having demonstrated to their own satisfaction that the results of the intensive campaign in Trenton justified the employment of similar measures in other communities, such campaigns have been inaugurated in Elizabeth, Plainfield, and other Jersey cities. A state wide distribution of billboards has also taken place, three large signs having been painted along the lines of the Pennsylvania Railroad between Elizabeth and Bound Brook. These attract the attention of both the national traveling class who pass frequently between Philadelphia and New York, and of the suburban and local residents in the New Jersey towns along the way. The posters and billboards include a slogan or appeal in some terse wording that can be read by him who runs, and a reference to the free clinics maintained by state departments of health in conjunction with the United States Public Health Service in several of the larger population centers of the state.

The results of the New Jersey campaign can be traced in the tabulations, by months, that have been made by the Department of the number of Wassermann blood tests and examinations of Gonococcus smears made in the state laboratory. For the entire state the figures show a gradual and steady increase, indicating the growing interest of the medical profession in proper treatment and diagnosis and of their willingness to make use of the state facilities. The 1919 figures compiled separately for Trenton, Camden, and Elizabeth show, respectively, a rapid increase, a slight increase, and a stationary total. These variations are due, say the representatives of the Bureau, to the fact that the vigorous publicity campaign was started in Trenton, the state capitol, a moderate one was carried out in Camden, and practically nothing was done in Elizabeth up to that time. Further, the average daily attendance and the total weekly attendance at the Trenton venereal disease clinic rose steadily during the period of the intensive campaign. A similar trend is noticeable in the totals for cases of venereal disease reported to the health authorities.

The most recent publicity device that has been used in the state is a series of animated pictures that has been shown in the various cities of the state. These pictures

are thrown on a glass plate in such a way that a portion of the first picture remains while another portion dissolves into a second picture illustrating an allied phase of the subject.

STRENGTH TESTS IN INDUSTRY

A report is made in *Public Health Reports* under date of August 13, 1920, describing the results of strength tests as applied to industrial workers. Fluctuations in strength from day to day and variations during a single day are important as affecting the industrial efficiency of the worker, and a study of such variations should lead to information concerning the factors which influence the physical conditions. The deductions drawn from these studies are summarized as follows:

(1) Fields of usefulness for strength tests are seen in (a) physical classifications, to aid in selecting operatives for particular jobs; (b) as criteria of physical condition in connection with the relationship of physical condition to industrial efficiency (c) as criteria of fatigue.

(2) The method of testing the strength of industrial workers is described in detail.

(3) Evidence is presented showing that with males laborious operations tend to develop approximately equal strength among the workers therein; in other words, there is a "standard" strength for each job. A table of the strengths associated with the various operations studied is given.

(4) Male workers at very light operations are shown to have, in general, the average strength for adult males. A single group, made up of men with various disabilities and engaged in a very light sitting operation, had an average strength markedly less than the mean for healthy adult males.

(5) Evidence is offered that within individual groups of males the stronger workers are likely to be more efficient industrially than the weaker.

(6) The occurrence among male workers at laborious operations of individuals whose strength is much less than the standard for the job, and somewhat below the usual figure for healthy adult males, is assumed to be indicative of "staleness" due to persistent overexertion. Workers giving signs of "staleness" show greater variations in the distribution of strength among the muscles in successive tests than do normally strong operatives.

(7) The question of the genuineness of poor strength showings is discussed and evidence is given that it is more difficult to make deliberately an inferior test than to put forth full strength, and also that the variations in successive tests would necessarily be wider if the tests were fraudulent than are seen in the poor series here under examination.

(8) That physical condition, as indicated by the strength showing, tends to bear a definite relationship to the industrial efficiency as expressed in output is shown by comparisons of day-to-day records of various male workers.

(9) Observations are given showing that there is a definite tendency for the strength of all the male workers in a single environment to fluctuate similarly from day to day. The conclusion is drawn that external factors are operative in determining strength, and that these act on all the workers alike. Among these the temperature at which the work is carried on suggests itself as important. There is evidence that persistent exposure to temperatures above 30° C. (86° F.) is unfavorable to strength. Relative humidities between 70 and 80 per cent appear to favor high strength showing. Other climatic influences have not been demonstrated to be operative. There is some suggestion that psychic influences, such as the arrival of pay day, may be operative. Since strength correlates with productiveness, the analysis of these external factors promises to be significant.

(10) In general, strong male workers show less fatigue than do weaker workers. This holds both for workers regardless of the nature of their work and for the strong and weak groups within particular operations.

(11) Evidence is given indicating that the impairment of physique due to exhaustion may be so severe as to require considerable time of rest for recovery to normal strength.

(12) There is evidence that the effects of fatigue are persistent, in that they tend to appear on the day following a day of fatigue. Severe fatigue is more likely to show this persistent effect than is mild fatigue.

(13) Days of poor physical condition are more likely to be followed by days of fatigue than are days of good condition, or days on which no demonstrable fatigue appears.

(14) There is no evidence that the strain of night work in an eight hour shift, changing every two weeks, impairs physique. A permanent night shift, working twelve hours nightly five nights in the week, averaged 15 per cent lower in strength than the day shift doing precisely similar work; but the evidence is insufficient to decide whether or not this poorer showing was actually due to the night work.

(15) Women operatives show a gradation of strength corresponding with the laboriousness of their work; the actual strength showing is, however, regularly less than would be anticipated in manual workers.

(16) Women employed at tasks requiring mental alertness or close concentration make better strength showings than those engaged in a routine manual toil, even though the latter be relatively heavy. A corresponding relationship is not apparent among male workers.

(17) There is evidence that among women, as among men, external factors influence the strength showing. The workers in a similar environment tend, as a group, to very in the same direction from day to day.

(18) Among women, as among men, demonstrable fatigue is more manifest in weaker workers than in stronger. The most pronounced indications of fatigue are presented in an operation requiring close concentration and carried on in a disagreeable environment.

ANTHRAX SERUM CUT OFF

The decision of the United States Government to discontinue the preparation of anthrax serum constitutes a menace to the community, according to Douglas Symmers, M.D., director of laboratories of the Bellevue Hospital, New York, which is the largest individual user of this therapeutic agent. The appropriation for that work was cut off by Congress on July 1 last.

The preparation of anthrax serum is both difficult and dangerous and should be left to highly trained hands. If health authorities of the states are to provide their own serum, they will need to be granted ample means, financial and otherwise, in order to provide hospitals and practicing physicians with plenty of anthrax serum.

INDUSTRIAL FEATURES OF BRITISH CENSUS

Certain new industrial inquiries will be introduced in the taking of the next official British census on the last Sunday in April, 1921. It is planned to make inquiries concerning the number of people engaged in occupations and in various industries and the movements of the population in going to and from work. These statistics are designed to assist in the handling of various educational, transportation, and general labor questions. It is further intended to ask questions on the matters of dependency, pensions, health insurance, and unemployment insurance. It is said that a provisional return will probably be available by the middle of June.

The census bill now before the British Parliament provides permanently for the taking regularly of a census. Heretofore separate authority has been required every ten years when a new census was to be taken. It is also possible, under the provisions of the new bill, to arrange for the taking of an interim quinquennial census. It will be determined in 1926 whether a census will be taken at that time.

It is considered that these data, not having heretofore been available, account for some of the inadequacies of programs designed to meet the needs of industrial communities.

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

PUBLIC HEALTH AND INSURANCE

AMERICA has always drawn largely upon England for inspiration and leadership in the field of public health. Lemuel Shattuck sat at the feet of Southwood Smith and Edwin Chadwick, although the Report of the Massachusetts Sanitary Commission which he prepared in 1850 was a document which in its own right ranks with the classics of British sanitary literature. Even today, however, there is a depth of scholarship and a breadth of statesmanship in the treatment of public health problems by the leaders in English public health which is rarely equaled on this side of the ocean. We are in such haste to obtain definite and immediate results, and often so successful in obtaining them, that the leisure for thinking out fundamental relationships is rare and the finished literary presentation of the fruits of such thought is even rarer.

Sir Arthur Newsholme's recent book on Public Health and Insurance,[1] which embodies the principal addresses delivered by him during the first year of his service as Lecturer on Public Health Administration at Johns Hopkins University, is therefore a peculiarly welcome contribution to the complex subjects with which it deals. The author has for thirty-five years been a leader in the practical tasks of preventive medicine in England and for eleven years the Principal Medical Officer of the Local Government Board. He has presented in these American addresses the mature and considerate judgment, in regard to public health policies, of a wise and constructive idealist of unusual practical experience; and the book is one that will prove of vital interest, not only to official public health workers but to physicians in general and to students of social reform of every kind and class. The author's description of recent English administrative developments in the control of tuberculosis and venereal disease and in infant welfare work—during the past four years central grants for special maternity and child welfare work having increased twelve-fold, the number of health visitors more than doubled, and the number of maternity and child welfare centers having increased five-fold—will be inspiring to students of public health as a profession; but his views in regard to the broader principles of the public health movement as a whole and its relation to the medical profession are of even wider importance.

Sir Arthur's first thesis, if one may attempt to concentrate the essence of a whole volume into a few lines, is the importance of sickness as a factor in poverty. He does not, of course, deny the inverse relation. Sickness and poverty form a complete and vicious circle. He does, however, urge with unusual force the argument, upon which Chadwick and Simon based the foundations of the modern public health movement eighty years ago, that sickness is not only a far larger factor in destitution than is commonly realized but that it is also a factor peculiarly amenable to preventive treatment and therefore deserving the immediate attention of the social reformer. He believes that in addition to all that has been accomplished in the past "it will be easy within the next ten years to reduce the death rate by one-third of its present amount, given systematic and adequate action on the part of public health authorities and an effective educational propaganda among the general public." There will never be complete success in attaining these ends, however, "until means are discovered for training and enlisting every medical practitioner as a medical officer of health in the circle of his private or public practice, and of securing his services not only in the early and prompt detection of disease, but also in the systematic supervision during health of the families under his care, and in advising them as to habits or methods of life which are inimical to health."

The second lesson to be drawn from these addresses is the danger of following false principles in the organization of administrative machinery for the prevention of disease. In particular he condemns "the *ad hoc* vice,"—"the inveterate tendency to create a new authority when any new work was inaugurated, this authority then fulfilling all purposes for a special portion of the community and thus necessarily duplicating the staffs of other departments of local or central government." He furnishes strong evidence to show the harm that has resulted through the separation of the medical service furnished under the Poor Law Authorities from the scheme of general public health administration; and he is convinced that the same mistake has been made in the National Insurance Act of 1911, which he condemns, in its present form, as economically unsound, medically reactionary, and worse than useless as a factor in the prevention of disease. Insurance, he believes, is one problem; the provision of necessary medical care another. The latter function should be related to the general public health program rather than to the insurance of a special class of the population. "The treatment and the prevention of disease cannot administratively be separated without injuring the possibilities of success of both."

From these premises it follows that the future success of the campaign for the control of preventable disease, and the destitution which it causes, must depend on the development of state medicine. By this term Sir Arthur means, of course, no arbitrary and Utopian revolution in medical practice but the orderly evolution of such

1. Johns Hopkins Press, Baltimore, 1920.

present tendencies as are seen in the development of school medical service, and public dispensaries, sanatoriums, and hospitals of many types.[2] The task of reorganizing medicine, on a communal basis is indeed, he estimates, half accomplished in England at the present time. "Already the Government pays one-half of local expenditure on a large program of maternity and child welfare work, one-half of the expense of local tuberculosis work, and three-fourths of the expense of local work for the diagnosis and treatment of venereal disease and for propaganda concerning these." The full control of disease which medical knowledge might accomplish will not, however, be realized "until every medical practitioner is trained to investigate each case of illness from a preventive as well as from what is often rather a pharmaceutical than a really curative standpoint, until a communal system of consultant and hospital service independent of any insurance system is made available for all needing it, and until every medical practitioner is related by financial and official ties to this communal system." The two fundamental objects which should always be kept in mind in planning for the socialization of medicine have seldom been more clearly stated than in the following sentences: "One essential item will be the substitution for fees during sickness of an annual payment to private practitioners by each family for supervising its members in health, for inquiry into their industrial and domestic life so far as it contains elements inimical to health, and for giving preventive more than curative advice. The second and most urgent element consists in the organization of hospital and consultative expert services for all, which, while greatly increasing each patient's prospect of prompt recovery, will enable the general practitioner to escape from the soul-destroying inefficiency of unaided medical practice."

2. The bill introduced into the last New York legislature and to be reintroduced at the next session (discussed in MODERN MEDICINE for April, 1920) is apparently the sort of measure which is contemplated.

In regard to the great obstacle which tends to retard the development of social medicine in America at the present time—the fear of political corruption and inefficiency—Sir Arthur takes a courageous and hopeful stand. He vigorously denounces the effects of selfish interests and timid parsimony in public administration of sanitary affairs and appeals with eloquence for the watchful alertness of the individual citizen to rebuke such tendencies. If, however, "democracy is to be real,—and we have no sound, practicable alternative to it,—evidently the representatives of the people must be masters of the administration; and English policy has never wavered on this point." These matters he regards as belonging to the direct iniative of the people and would presumably not approve of the rather general tendency in this country to protect health administration from direct contact with the primary source of legislative authority through delegation of power to expert commissioners and executive officers. "All substitutes for government of the people by the representatives of the whole population," he believes, "are open to objection. They do not contain within them the elements of permanence. If there is a corrupt council, the remedy is not in its suppression by an independent executive. Such an executive is the abrogation of popular government."

The difference between conditions in England and the United States, in this and other respects, may materially modify the application of these views in America. England has built up her public service far more solidly than we have done. On the other hand, the success of private initiative in this country in the development of industrial medicine, public health nursing, and hospital and dispensary service through private initiative indicates a special aptitude for constructive social progress along non-political lines. Yet here, as elsewhere, Sir Arthur Newsholme's experience and counsel will be of inestimable benefit in the difficult tasks of sanitary statesmanship.

EDITOR.

COMMON SENSE ABOUT CLIMATE

BY CHARLES HENRY LERRIGO, M.D., STATE BOARD OF HEALTH, TOPEKA, KAN.

LESS than a year before, in his far Eastern home, Dave had stood stripped to the waist, in a doctor's office while the spectacled man of science carefully sounded a bare chest and back. "It's what I was afraid of, lad," the doctor had said at last. "There's a spot on your lungs. But you're not in bad shape. A few months in the open in the Southwest will straighten you up, if you can arrange to get there."

Dave did arrange and when he boarded a westbound train he had a long, one-way ticket to Arizona. Although none too well supplied with money he worried but little over his finances, because his intentions were to do the same thing as he had been doing for some time—work. The day after he stepped from the train he found a job.

The above extract from a story just published in a magazine of wide circulation is representative of the popular impression that is conveyed by the literature that is served to the reading public of the United States in reference to conditions that are necessary in order to cure tuberculosis. It assumes that the doctor finds a spot on the lungs and that all that is then necessary is a few months in the open in the Southwest. The patient, who is none too well supplied with money, does not worry about his finances because his intentions are to work, and the day after he steps from the train he finds a job.

If such sentiments as these were promulgated only through the lay press, that would not be so utterly surprising because we can easily see in them the remains of medical teaching of a quarter of a century ago. Unfortunately, however, there is still a very general feeling among those members of the medical profession who have not made a special study of tuberculosis and do not give it special attention, that this method of treatment is really effective towards its cure.

Go to a representative gateway to the West and Southwest, such as Kansas City, any day in the year, and give attention to the travelers passing through the Union Station. You will need to watch only a short time to see passengers for Colorado, Texas, New Mexico, Arizona, or southern California who are so marked by the ravages of the white plague that the most casual observer is aware of their affliction.

They are traveling in day coaches, chair cars, and possibly tourist sleepers. Rarely do you see such patients enjoying the luxury of a Pullman coach. Persons who can afford expensive methods of travel can afford up to date physicians who know better than to advise such a disastrous journey. There are laws which provide that railroads shall carry such persons only if compliance has

been made with certain regulations that will serve to protect the traveling public, but it is rare that any effort is made to observe such laws.

I saw such a victim enter a car in which I was traveling. He was helped to a seat near the water cooler by two Redcaps, and sank into it quite exhausted. When he was rested, I took the vacant seat by his side in order that I might inquire how I could serve him, for I have as much sympathy for such a victim as I have indignation against his cruel advisers. He told me that he had been ill for a long time but had got along without a doctor. However, he was now on his way to a sanatorium of high repute operated by a fraternal organization in which he held membership. His only worry was that the sanatorium had notified him that he could not stay if he had reached an advanced stage of the disease.

He was so plainly marked for an early grave that there was not a passenger in that crowded car unconcerned as to his immediate welfare. Yet the cruel advice to "go West to a better climate" had led him into a terrible journey that could end only in disaster.

And yet he was not in the parlous plight of the common migratory consumptive, for at least he was consigned to an institution that would give him some care if not more than to arrange for his return journey. Think of the hundreds who go out in a vain quest for the land of robust health and golden prospect, only to find that to the sick and poverty stricken person it is nothing but an overcrowded, high priced, hard place where the responsiveness of the public has been dulled by too frequent appeals to its charity, and there are "no public institutions with free care for non-residents," and where the pangs of homesickness will add a bitter sting to the depression and distress of sickness and poverty.

No wonder that they die before the favored climate has given them a chance.

Why the Indigent Migrate

The National Tuberculosis Association has attempted to investigate the conditions under which a large number of the indigent migratory consumptives, whose migrations have carried them to certain of our health resorts in the Southwest, were induced to make the journey. It is found that out of 1,786 cases 738 had been advised to make the journey in search of health to these southwestern points by their physicians; and that, too, in spite of the fact that these persons sick with consumption had no financial resources, had no friends to receive them at their journey's end, and would be dependent for sustenance upon such work as they were able to secure when they arrived at the "land of promise."

Without bringing into discussion the possible advantages that certain climates may possess, it is now generally accepted by all authorities on the subject of tuberculosis that any climate is a good climate for recovery from the disease, provided that it can be enjoyed in comfort, the patient being protected by proper clothing and bedding, being supplied with a liberal amount of well selected food, and having all care and worry removed from his mind so that he may be able to enjoy both mental and physical rest while the processes of cure are being established.

With such acknowledged facts, it is most deplorable that the opinion is still almost universal among lay writers that the cure of tuberculosis demands a visit to the great Southwest, and that it is quite unimportant what the financial condition of the patient may be, since he undoubtedly will be able to support himself by his own labors once he is established in the ideal climate. If it is aggravating to have such sentiments voiced by lay writers, how much more exasperating is it to find medical men still giving expression to such opinions, and actually sending a large number of patients to a destination that will cut them off from home support, thus in very many cases virtually sending them to their doom.

Under these circumstances, it is interesting to read the warning that is sent out by the State of California to Eastern health seekers:

California Warns Eastern Health Seekers

Tuberculosis demands rest, food, fresh air, and peace of mind. This may not mean a change of climate.

California has no public institutions with free care for non-residents.

With funds to live for a year, come, but do not rely on finding light work for support.

The State Board of Health warns you, because it wishes to spare you homesickness and suffering from financial strain.

These statements are sent out over the signature of the Bureau of Tuberculosis, California State Board of Health.

It is also refreshing to notice that at the New Orleans meeting of the American Medical Association the following resolutions were adopted concerning migration of indigent consumptives:

WHEREAS, The National Tuberculosis Association, through investigation of its Committee on Indigent Migratory Consumptives, covering the last fifteen months, has found:

That there is a large migration of indigent consumptives to the Southwest in search of health;

That out of 1,786 cases, largely indigent or potentially indigent, reported from the Southwest in the last six month, 738, or 41.3 per cent, had been definitely advised to go there by physicians;

That this migration of indigent and potentially indigent consumptives is ill advised in that it causes much needless suffering and loss of life brought on by inadequate care, worry, homesickness, and lack of proper food, which are conditions too frequently experienced after arrival; and furthermore,

That this migration of this group is a menace to the public health, both during migration and after arrival, and is a financial drain and social burden to the communities to which the migration goes. Therefore, be it

RESOLVED, That in order to check this unnecessary and undesirable migration, physicians throughout the country be not only requested but urged *not* to advise their tuberculosis patients to migrate to the health resort states, unless such patients have sufficient funds to properly provide for their necessary care and comforts for at least one year.

It is to be hoped that accurate information may rapidly be spread among social workers, writers, and teachers of every kind, since it is so very important that the general public shall understand:

(1) That it is not necessary to leave home in order to be cured of tuberculosis.

(2) That in order to effect a cure of this disease it is absolutely necessary to stop work and secure perfect rest, both of body and mind.

(3) That if there is any advantage at all in the supposedly favored climates, which have been known for many years as health resorts for the cure of tuberculosis, that advantage is utterly nullified for anyone who cannot combine with it all the comforts of home, together with freedom from worry and work.

Uncorrected activities are essentially selfish and not infrequently they may be cruel and inhuman, but power once acquired may and should become an agent of great beneficence and does when united with those elements of character which make for constructive ends. Progress is away from purely selfish ends.—William A. White.

INFLUENCE OF MEDICAL PROFESSION ON LEGISLATION AND THE PUBLIC WELFARE*

By JOHN B. HAWES, 2ND, M.D., Boston, Mass.

IN A recent editorial in the *Boston Medical and Surgical Journal* the following statement was made: "The report of the Joint Committee in Legislation published in last month's issue of the *Journal* is discouraging to those who hoped for progressive action on the part of the legislature this year. It is discouraging to realize how little influence, except in a negative way, the medical profession exerts through the Joint Committee. While no backward step has been taken, the record is one of complete failure to gain any step forward."

What weakness of influence is exhibited by the medical profession in matters of legislation is not to be attributed to the principles for which they stand nor to the motivation of their activities.

Their programs have lacked the drive which invariably attaches to self-interest, and the measures they have employed for affecting legislation have been vague, intangible, and for the most part addressed after the mind of the legislator was all set for action, and not open to change.

If as a profession physicians are to achieve a potent, persistent pull for constructive legislation, they must evolve an organization which politicians will need to notice and which both the people and their representatives will accord a confidence they do not give to last minute lobbying.

Such a statement as this, which is known to be the truth as far as Massachusetts is concerned, might with few exceptions be applied with equal force to the condition of affairs in almost every other state of this country. From 1907 to 1920, as secretary of a state commission which was in charge of the Massachusetts sanatoriums for consumptives and of the tuberculosis campaign in this state in general, it was part of my duties to attend hearings not only in regard to tuberculosis and matters directly related to my Board of Trustees, but also those concerning health matters in general. What has been accomplished at such hearings during these years by the various committees on legislation representing the Massachusetts Medical Society bears a striking resemblance to what has been accomplished this year, as described in the editorial quoted above. Anti-vaccination bills have been successfully opposed and killed each year, though with difficulty; many good measures have been supported and occasionally their passage secured; bad bills have been opposed and occasionally their enactment prevented. Yet as a whole it is undoubtedly true that the influence of the medical profession in this state as represented by the Massachusetts Medical Society on its legislative body, the Senate and House, is conspicuous by its absence.

Others Do Not Lack Influence

Other organizations representing various groups of men, industries, trades and occupations are not without influence at the State House. It is an undoubted fact that a union such as that of the brick layers or that of the amalgamated cigar makers can exert a powerful influence on those who represent them; any large public service corporation seems to be able to make its wants known quite definitely and clearly on Beacon Hill. In the *Boston Evening Transcript* of May 22, 1920, interesting comment is made on the influence of the now powerful Farmers' party in Ontario, Can. On two recent occasions when the representatives of the farmers in the legislature seemed about to take a certain action that did not meet with the approval of those they represented, "the executives of the Farmers' Organization issued a broadside to the farmers' clubs throughout the country, with the result that the members of the House were deluged with such a floor of telegrams and letters that they immediately reconsidered their former decision."

I do not for a moment criticize these various committees and the men serving on them who have represented the Massachusetts Medical Society and other medical organizations in this state. These men have given freely of their time and energy and have worked long and faithfully to bring about what they knew and what we all knew was for the good of the community; yet the fact remains that they have failed in the vast majority of instances to produce results. Why have they failed? The answer to this question is one that vitally concerns every physician in the country. Why does a group of men, each of whom has spent the best years of his life in training for the noblest and best of all professions, have so little influence in the community? Surely our aims and ideals are of the best. This no one can deny. Then it must be our means and methods that are at fault. No other conclusion is possible.

With this idea firmly fixed in my mind, I wrote a personal letter to the secretary of every state medical society in the country, describing what I believed to be a most unsatisfactory state of affairs in Massachusetts and asking for details as to how each respective medical society attempted to solve this problem, and the results obtained. The answers were interesting in the extreme. A summary and brief synopsis of these letters is here given.

There were thirty-two answers to the forty-eight letters I sent out. In seventeen instances, over 50 per cent, the reply was to the effect that the medical society had a committee on state and national legislation with equivalent which accomplished little or nothing. Excerpts from some of these letters show the general trend of answers and, likewise, a marked similarity:

Arizona.—"This Association has a legislative committee which takes whatever action may seem proper. Its real value is distinctly limited."

California.—"As far as I can make out, the California State Medical Society has nothing to do with legislative matters."

Connecticut.—"There is a legislative committee which appears in opposition to anti-vaccination bills. It rarely accomplishes anything. They have no satisfactory system."

Delaware.—"There is a committee on public policy and legislation. It has no influence on legislation."

Iowa.—"There is a legislative committee of five members. The amount accomplished is largely due to the per-

*Published in October issue of the Boston Medical & Surgical Journal. Simultaneous use authorized.

sonal efforts of the chairman of this committee. There is no organization in the Society."

Kansas.—"The influence of the state Society with the state legislature is not of great importance. There is a committee on legislation, which accomplishes little or nothing."

Maine.—"There is a legislative committee which appears at hearings and which has little or no influence. The greatest help comes from physicians who are members of the legislature. The medical profession at large has little or no influence."

Minnesota.—"The Association has a legislative committee, which is somewhat inactive."

Nebraska.—"There is a committee on public policy and legislation, which accomplishes nothing." The writer of this letter does not believe that anything can be accomplished by legislative committees or by direct influence.

New Hampshire.—"The Society has a legislative committee which appears before the House and Senate Committees on various bills." So far, the writer of this letter believes, this committee has been a failure.

New Jersey.—"There is a legislative committee, which has no influence. The only influence that the medical profession has is through its members who are the family physicians of the legislators."

New Mexico.—"There is a legislative committee, which accomplishes nothing."

Porto Rico.—"The Medical Society of Porto Rico has a legislative committee, but so far it has not accomplished anything favorable for the medical profession."

Suspect the Paid Lobbyist

Wisconsin.—"There is a legislative committee, which does nothing. They have at times maintained a paid lobbyist, which accomplished nothing. A committee before the legislature seems invariably to arouse suspicion."

North Dakota.—"The legislative committee plan is a failure."

South Carolina.—"Legislative committees amount to little or nothing."

West Virginia.—"There is a committee on public policy and legislation," which, in the writer's opinion, has been a failure. "Things are put off until there is due need of action, and then it is too late to do anything."

That the situation is not quite so bad as the preceding replies would indicate is shown by the following extracts from my replies from other states and comments on them:

Idaho.—My correspondent believes that the only successful plan is for the Society to put a competent paid man on the job, with instructions to get results. No details as to how he is to do this are given.

Illinois.—The principles under which the Illinois Society acts are: (1) A good, live man at the head of the legislative committee, who lives at the capitol. (2) Organization of medical men throughout the state, so that they can see their representatives in the legislature while they are at home on week ends. (3) Information given to the medical men in each county throughout the state pertaining to bills that are introduced. (4) Sufficient funds: In Illinois members of the state society are assessed fifty cents each for this purpose. (5) The emphasizing of the fact that there is no personal or selfish purpose in the arguments brought forward; that it is simply a question of keeping up the standard of health and medical legislation as it should be. Further details are given.

Louisiana.—There is a committee on public policy and legislation composed of the most influential physicians in the state. All matters are referred to this Committee. The members visit the capitol, if necessary, and use whatever influence they can, either for or against legislative matters. Its work seems to be fairly satisfactory.

Maryland.—There is a legislative committee appointed each year to take charge of medical legislation, but this method has not proved to be very effective. This year the plan is to organize the physicians throughout the state into committees which will work with the candidates for election immediately after the primaries. Their idea is to have the candidates informed regarding the type of legislation they need, even before their election.

Missouri.—The secretary of the Association is likewise secretary of the Committee of Health and Public Instruction. He keeps informed concerning all details that touch the medical profession or public health. When necessary, he sends information concerning such bills to each of the component societies in the state Association, comprising 109 county societies out of 115 counties, giving the title and number of the bill, and what it is about. The physicians then act individually as well as through the county societies. They get the names of the family physicians of each member of the legislature. The leading members of the profession then get together with the leading members of the legislature or with the governor. Special influence is brought to bear upon the Committee before a bill is given a public hearing. This, of course, requires time, numerous visits to the capitol, and frequent consultations with local physicians and friendly politicians. It is not considered wise to have a paid lobbyist. There is evidently an active and influential medical association in this state.

Montana.—"The handling of legislative problems is easy if done systematically. Medical men best acquainted with important members of the legislature talk over the desired measures and educate them on the subject." Here, again, no details are given. The plan sounds far simpler than it must really be.

New York.—The State Medical Society has a legislative committee, which for many years has been very efficient. It does not limit itself to attending hearings, but acts by personal interviews with the legislators. The New York County Medical Society also has a legislative committee, acting in unison with the state society. For several years the president of the state society has taken an active hand in legislative work. New York has adopted the principle of personal interviews and influence with the legislature. They also ascertain who is the family or personal physician of each legislator.

North Carolina.—The Committee selects one doctor in each county who can be called upon to confer with, write, or wire his representative or senator in the general assembly. There are one hundred counties, and the Association has been able to turn in a telegram to the senators and representatives in the general assembly for more than 75 per cent of these counties on a given morning. This has been of distinct influence. This plan, which corresponds closely to that referred to above of the Farmers' Association in Ontario, has many advantages.

Ohio.—A wide awake state medical society, an enterprising medical journal, cooperation of the various welfare and health agencies, have accomplished a great deal in this state. The various members of the Society, at home in conference with their legislators, have accomplished much. There is a representative from each county medical society, and these representatives get together and discuss pending legislation. The results are good.

Pennsylvania.—The president of the Society has a desk in the Department of Public Health at the state house. He is in harmony with this department. He is closely

affiliated with the medical members of the House and Senate, and attends committee meetings, not as a lobbyist, but simply as an advisor. He lets it be understood that he represents 11,500 physicians in Pennsylvania. The results depend largely upon the personality of the president of the Society. Pennsylvania is to be congratulated in having as the president of its state medical society a man who can devote so much time and who is able to exert so much influence as is apparently the case here.

South Carolina.—The president of the state medical society calls a meeting of one or more influential physicians from each county in the state during the early days of the legislature. These men go immediately to their representatives, tell them what legislation is desired, and what is undesirable. There is no expense attached to this plan.

Tennessee.—When the medical association wishes the enactment of any law in which physicians are interested, they appoint a committee which will give the necessary time and energy to complete the matter. This correspondent is opposed to the medical profession interfering in legislation, as the responsibility does not belong to them. The responsibility should be put on the legislators. The medical profession should see to it that the legislators are informed regarding what is good or bad legislation, and then leave the rest to the lawmakers. Here, again, is outlined a plan that sounds simple enough but is not easy to carry out.

Politicians Respect Organization

Texas.—There is a legislative committee, consisting of the secretary, president, and three others. The secretary of the Association is secretary of this committee, or Council. He keeps the Council informed and active in regard to legislative matters, and on him depends the success of this plan. The society employs a man who remains constantly with the legislature and keeps the secretary thoroughly informed as to the legislative situation as it pertains to public health and the medical profession. Telegrams, letters, and other methods of appeal are used, all having been carefully prepared in advance. Educational propaganda is carefully conducted with the various county societies and their legislative representatives. It is necessary to impress legislators with the fact that the effort being made is organized, and that a record is kept of the proceedings. Those who expect to remain in politics have a wonderful respect for organization.

Washington.—There is a legislative committee, but it has been hampered in its work by the lack of a constructive program. They have come to the following conclusions: (1) The best time to interview a legislator is prior to his election. (2) A constructive program must be adopted and must be patiently followed from year to year. (3) This program must be for the best interests of the public. (4) The legislative committee should have complete freedom of action. Individual action should be discouraged.

West Virginia.—As mentioned above, there is a committee on public policy and legislation which, in our correspondent's opinion, has been a failure. Things are put off until there is dire need of action, and then it is too late to do anything. A legislative committee should go to work on the legislators before their election, if possible, by personal interviews. It is important to know the family physician of every legislator.

Here, then, is the evidence which, as everyone will admit, goes to show fairly clearly that the medical profession in this country as far as the individual states are concerned and indeed, in my opinion, as far as the country as a whole is concerned, is not the power for good that it should be. Can anything be done to improve this state of affairs? This question I would strongly answer in the affirmative, and would make the following suggestions:

Medical Profession Lacks Drive

(1) Education of the public as to its needs in health matters and legislation therefor. This should be done by articles of local interest whenever possible, printed in *newspaper English* in the daily and weekly lay press. Provided such articles contain news and are of local interest, every newspaper will be glad to print them and will recognize their importance and value.

(2) Education of the legislators. This is a difficult task. Find out the family physician of every legislator; instruct such physicians as to what is needed and obtain their cooperation and promise to interview the legislators in question personally in regard to important subjects. Find out the views of each legislator prior to his election and make such views favorably or unfavorably known to the physicians and the electors of his district.

(3) Education of the medical profession. In the medical press and by personal letters and at medical meetings impress upon every doctor that it is part of his duties and part of his responsibility to the public to educate his patients and the families under his care concerning public health matters and preventive medicine.

(4) Every state medical society might well employ a capable man at full or part time to assist in the details necessary to carry on the campaign outlined. He should also prepare the means and methods so that at short notice a given legislator or group of legislators can be deluged with letters, telegrams, and personal interviews urging his action for or against certain measures. The average legislator will not be greatly influenced by a legislative committee representing what is to him a somewhat vague and intangible thing such as a state medical society, particularly when he hears from such a committee at a time when his mind is usually already made up as to which way he intends to vote. He will be influenced, however, by appeals from men, constituents of his, whom he knows personally, from his own district, and who he likewise knows have large influence among the voters of his district. Such influence will be all the greater if it is brought to bear at an early stage, when his opinion is still in the formative state.

These are, of course, merely suggestions, the details of which must depend upon local conditions. I believe, however, that by carrying them out in whole or in part the medical profession will be a greater power for public good than it now is.

FOR UNITY IN SOCIAL WORK

The need of greater unity in social work was considered at a conference recently of officers of various organizations engaged in such work, among whom were Secretary of War Baker, Charles D. Orth, president of the National Security League, and Dr. George E. Vincent, president of the Rockefeller Foundation.

Mr. Orth announced the appointment of a committee of the National Security League, headed by David Jayne Hill, to prosecute the work of the coordination and amalgamation of patriotic and civic societies throughout the country. Every field of social service is overdivided, declared Secretary Baker, who proposed that the various organizations establish a central agency to survey the field of social work with the view of merging similar societies. Such action is in the interest of efficiency.

THE PSYCHO-EDUCATIONAL CLINIC—ITS CONSTRUCTIVE POLICY

By HERMIONE L. DEALEY, Psycho-Educational Clinic, University of Minnesota, Minneapolis, Minn.

If, speaking in in terms of its recent work, the Psychological Clinic in six months handles one hundred cases, and as a result can offer constructive suggestions which make for needed adjustments, how great must be the actual need of systematic assistance for all school children!

Without a realization of the needs of the child in terms of its mental and physical health the power of the school as a socializing agent must remain purely nominal. Owing to general ignorance of individual capacities, misfits keep piling up, withdrawals multiply, and there results a constant increase in the case records of social agencies. The Clinic is an effective social aid in the promotion of better health through the creation of better educational adjustment.

TODAY certain methods are characterized as "modern;" for instance, methods of modern warfare, methods of combating different diseases, and to some extent methods employed in education. The term "modern" is considered significant because it suggests the application of scientific knowledge and implies that genuine social progress is dependent upon adequate diagnosis followed by constructive measures. Among different agencies employing such modern methods as means of best approach towards the social goal is the psycho-educational clinic.

The Psycho-Educational Clinic is a laboratory wherein are carried on intensive psychological measurements of individuals, the results of these measurements forming the basis for necessary educational adjustments. In the phrase "educational adjustments," the word educational is to be interpreted broadly, that is, not only in its application to the school room situation but also with reference to situations experienced every day. Methods of the Clinic are "modern" in that through scientific measurements capacities are noted, defects are ascertained, and causes for poor habit formation are brought to light. On the basis of these data it is possible to offer constructive suggestions as to what may well be done to develop capacities, to remedy defects where this is possible, to reform bad and to establish good habits.

In so far as the work of the Psycho-Educational Clinic is educational in nature the question may be raised, does not the clinic assume duties inherent in the democratic nature of the American school system? Yes, certainly. But what the clinic *is accomplishing* on a small scale, American schools are still *going to do* in years to come. There is a vast difference between the two conditions.

For three important reasons schools are not yet prepared to meet certain fundamental obligations. In the first place, the social mind has not yet sufficiently grasped the importance of early and systematic analysis of the intelligence and mental characteristics of school children so that method of teaching and content taught may in truth be related to the "nature and needs of the child." In the second place, school administrators and teachers are not trained to understand educational requirements in terms of mental and physical developments. In the third place, changes evolve slowly. The process of "psychologizing" education is confronted by a social bulwark of old behaviour patterns which must be broken down and replaced by those of the new scientific era.

Causes for this deficit in American education are found in the almost invariable grouping of school children according to chronological age. As a result, by natural process the big amount of retardation and the little amount of acceleration and all the numerous concomitant conditions pile up. Then the public finds itself confronted with "educational problems." From the psychological point of view facts show that each child develops according to his capacity, not according to his chronological age, and that the quality of school achievement is directly correlated with natural intelligence and environmental influences. The American "freedom" and "equality" must be interpreted in terms of the child's capacity to react to opportunities offered; otherwise our educational democracy is impractical. As long as educators are ignorant of the intelligence of children, they can not know what educational opportunities to offer. Hence, while energetic psychological research is being carried on in order to obtain facts wherewith to create a favorable public attitude towards the validity of applying modern methods to education, the psycho-educational clinic, not waiting for the entire school system, seeks to hasten matters by showing what can be done.

Organized for Present Needs

This article, although it may describe in general the nature of the psycho-educational clinic as it exists in different states, refers specifically to the Clinic organized in the fall of 1916 in the College of Education of the University of Minnesota and conducted in cooperation with several clinics in the School of Medicine. Advantages of this alliance with the School of Medicine are obvious. Facts of physiological health must be known and may best be obtained from medical authorities, for instance, those in the Pediatrics Clinic, in the Clinic for Nervous and Mental Diseases, in the Ear and Eye Clinic. Furthermore, a comprehensive understanding of individual cases requires a *social history*. This is in part obtained through cooperation with the Department of Social Service of the University Hospital. A special outline indicating information desired by the clinic is followed by the departmental social workers. Additional facts, with especial reference to school progress, are obtained by members of the clinic or are submitted by those social agencies referring cases. These data—mental, physical, and social—are placed on record and form the basis for diagnosis, recommendation, and follow-up.

Individuals are referred to the Psycho-Educational Clinic by the State Board of Control, the Hennepin County Child Welfare Board, the Women's Cooperative Alliance, the University Hospital, the Visiting Nurses Association, orphan asylums, maternity homes, clinics of the University medical school, public and private schools, private physicians, and parents. The great variety of agencies cooperating with the Clinic suggests the range and depth of the problems involved: for instance, the superior child, the delinquent, the backward child, the

borderline case, the type which "cannot hold a job," the child who is handicapped by poor habit formation, the feeble-minded, the child held for adoption. Any person through regular or special appointment may be examined at the Clinic. No fees are required. All individuals, unless ignorant of the English language, are tested by the Stanford revision of the Binet-Simon tests; results so obtained are often supplemented by a partial or complete mental rating based on performance tests.

In order to indicate more definitely the attitude of the Psycho-Educational Clinic toward mental health typical instances will be given where there is obvious need for constructive educational adjustment.

Problem of the Superior Child

(1) Psychological tests do select the "superior child." From recent examination the Clinic has placed in special file the records of ten children each with an intelligence quotient of 120 or above. Chronological ages of these children range from seven years seven months to fourteen years and eleven months; but the mental ages are from ten years nine months to eighteen years one and one-half months. Intelligence quotients for the group range from 122 to 180. Despite the great discrepancies between chronological and mental ages, only two children were two years advanced in school work, six were one year advanced, and two were not advanced at all. The big cause for redajustment in cases of this nature is the *lack of opportunity to develop according to capacity.* The mother complains that her child "does not seem to be doing as well as he should." The teacher admits the child seems bright enough, nevertheless he lacks "attention," indulges in "day-dreaming," and ignores school "discipline" in general. Parents and teachers feel the need for readjustment, but are at a loss just how to bring it about.

These children have a right, if there is freedom and equality in education, to demand sufficient incentives and sufficient depth and breadth in school work to keep them constructively busy and happy. This means the broadening of the regular course of study or rapid promotion through regular school work or the insertion of special classes fitted to meet requirements of the superior group. In emphasizing this aspect of psycho-educational analysis the Clinic stands as an enthusiastic advocate for the utilization of the most valuable mental capacities of individuals.

The Other Extreme

(2) Reverting from the superior child to the extreme of feeble-mindedness, new problems arise. A girl aged twenty years, is referred to the Clinic. She has a mental age of nine years, an intelligence quotient of fifty-six and is classified as a low grade moron. Her father and mother separated several years ago; the only other child died of "heart failure." The girl attended school until seventeen years of age, first competing in the regular grades, but finally finishing in a special class where she was doing something like fifth grade work. Since leaving school she has stayed at home, without friends, with no definite training for anything, helping a trifle around the house,—enjoying (presumably) "life, liberty, and the pursuit of happiness." Of what earthly use has the general education of the four grades been to this girl? How many periods of depression has she experienced owing to lack of capacity to compete with other members of the class and to the teachers' attitude towards her inability to learn! The Clinic sees that the girl has been allowed to cope with experiences obviously unsuited to her nature; she has been encouraged to enlist much attention and time from teachers without being able to give the desired response. This illustrates a big waste of time and energy and the suppression of happiness.

A mother, about thirty years of age, is found to have a mental age of eight years and an intelligence quotient of fifty. Her two children, twins, are both high grade morons. The mother is immoral, her husband is "bad," the home and neighborhood are very inferior. This family makes no contribution to society; it should never have come into existence; it might have been avoided through an early knowledge of the girl based on psychological measurements.

A child of eight years and two months scores a mental age of three years ten and one-half months and an intelligence quotient of forty-seven. He has distinguished himself by repeating the C division of the first grade for the fourth time. The teacher rather despairs that he can learn. The parents think the child just a little different from other children, yet believe that he will make good in time. The Clinic, on the other hand, notes the intelligence quotient, a history of disease, and the frequent occurence of convulsions.

A girl over twenty years of age of cheerful disposition and "pleasing personality" attempts high school work but fails. The Clinic discovers a mental age of nine years nine months. Evidently personality is a factor in determining a child's progress through the grades. Psychological measurements discount this factor and account for the failure in high school.

Significance of the Work

In short, during the past six months thirty feeble-minded individuals and thirteen borderline cases have been brought to the Clinic. These cases illustrate specifically the fact that neglect to employ early psychological diagnosis results in a maximum of waste, a minimum amount of learning, and an increase in the number of social dependents. Moreover, as the chronological ages of these individuals increase, degenerate offspring are apt to materialize, either with or without marriage. Individuals of this type who eventually are to be segregated should receive early attention in order to conserve the country's time, energy, and financial resources. Surely such cases need not be multiplied to show the significance of the clinical work. The Clinic seeks social improvement through timely appreciation of individual deficiencies and through isolation of those who are certain to retard social progress.

(3) The Clinic faces the problem not only of effecting adjustments for superior and for feeble-minded individuals, but also of analyzing home and school conditions in terms of habit formation and of emotional reactions. Certain persons, though of normal intelligence, do not seem able to "get along." The child of normal intelligence who has no brothers and sisters and who has been kept by himself in adult atmosphere, when sent to school does not know how to play with other children since he has never formed habits of group play: he is averse to following directions from the teacher because he is accustomed to *reason* wtih his parents, not as a child but as an equal. Hence in the eyes of the school he is malicious, unmanageable, and a big "school problem." The boy who has been isolated in the country and has never attended school, on coming to the city school is able to talk only in rare monosyllables and finds it impossible to read before his class. The new situation arouses fear, which acts against adjustment. One child who is obviously backward in school and of low normal intelligence is found to come from a home full of sickness and depression.

Though less than twelve years of age, she assumes the responsibilities of an adult; and is rapidly forgetting how to smile.

Maintenance of mental health is ever dependent upon the continuous process of proper habit formation in terms of necessary environmental adjustments. When these adjustments can not be met, conflicts arise and there is need for a scientific study of causes and effects in order to remedy the situation.

Deserve Chance to Develop

(4) Children who are mentally retarded have an especially hard time getting an opportunity to develop. A small boy of six years six months was brought to the Clinic with the suggestion that he was probably feeble-minded. Test results showed retardation of a little over a year, an intelligence quotient of eighty. Inquiry disclosed the information that the mother had died when the boy was a few months old and that he had been sent to live with his grandmother. At four years he was characterized as stupid, unable to talk, and apparently devoid of intelligence. The father remarried and the stepmother rather objected to the child's return to the home. Now, encouraged by the fact that the boy is not feeble-minded and after observing his progress during a period of attention and training, the woman expresses her willingness to keep him. In school, however, the child is not able to do the work of the first grade. According to his mental age he should be in the kindergarten instead of attempting the work of the first grade and having to experience failures. Evidently an appreciation of the way in which children have been allowed to develop and a knowledge of the amount of mental retardation can help eliminate a lot of trial and failure in home and school education.

The illustrations cited under the four headings above are naturally brief and rather generalized, yet they may serve to indicate the great need for educational adjustments based on psychological measurements and their interpretation in terms of all available information. If speaking as before in terms of its recent work, the Psycho-Educational Clinic in six months handles about one hundred cases, twenty-one of which are classified as "superior," sixteen as mentally backward, eighteen of average intelligence, thirteen as borderline cases, and thirty-one as feeble-minded, and as a result can offer constructive suggestions which make for needed adjustments, how great must be the actual need of systematic assistance for the thousands of school children!

The American school is recognized as the Nation's big and universal socializing agent. It has the power to observe and to control human behavior over an appreciable period of time. Yet, without realization of the needs of the child in terms of its mental and physical health, this power must remain purely nominal. In which case there will continue to be a general ignorance of individual capacities, the number of "misfits" will keep piling up, withdrawals will multiply, only a small percentage of children will get the "common education," and there will be constant increase in the case records of social agencies. In competition with this situation the Clinic asserts itself as the small but virile forerunner of activities which in coming years will be practised throughout the entire American school system.

Students enlisted in the work of the Psycho-Educational Clinic at the University of Minnesota not only observe the different cases directly and get a real comprehension of the human problems involved, but also learn much through their own work in different schools. Within the year tests have been made in eight different schools. Seven students, working systematically for two academic quarters, have given a total of one hundred tests in three of the schools. Results obtained are unquestionably valuable from the point of view of the students themselves, of the teachers, and of principals.

Finally, as an agent active in modern forms of social service the Psycho-Educational Clinic makes special effort to enlist the intelligent interest and cooperation of parents, of social workers and of nurses in public health service. To this end special demonstrations of methods and results are given, but more often results of the clinical work are explained through lectures. Almost without exception social response has been enthusiastic and genuine. Hence, when each year there is a significant increase in social appreciation of this kind of work, it may well be said that the Psycho-Educational Clinic both in policy and in practice is a "modern" agent for the promotion of mental health through the creation of better education adjustments.

THE STAMP OF HEALTH

The penny tuberculosis Christmas Seals are the greatest factor in financing tuberculosis work. In addition to the seals, the Association is offering "health bonds," guaranteed to bring in extraordinary returns in individual and community health.

Tuberculosis is no respecter of persons. Education of every class of the country's population on preventive measures is the only safeguard. Christmas seals have made possible the furnishing of milk to the children in the open air schools and have financed tuberculosis clinics; infant welfare clinics; health crusade work among the

school children, an educational exhibit that has been viewed by more than a half million persons in Chicago and Cook County; an automobile "traveling clinic" which has been responsible for the establishment of a number of permanent clinics; public nursing work and a vast amount of propaganda.

The actual work done by the local anti-tuberculosis societies is necessarily limited by the amount of funds at their disposal, and if the field is to be covered properly, each and every one must buy his quota of Christmas Seals.

WORLD-WIDE FIGHT ON TUBERCULOSIS

The National Anti-Tuberculosis Commission, under the presidency of Leon Bourgeois, has sent out invitations to similar committees in the United States and the countries adhering to the League of Nations to send delegates to Paris for the purpose of creating an international organization to fight tuberculosis.

THE HEALTH CLASS IDEA

By IRA S. WILE, M.D., New York City

At last in medical service the emphasis is placed where it belongs—on health and on that harmony of mental and physical factors necessary for the complete functioning of the human organism.

The achievement of this objective will promote a better understanding of childhood in all directions and will involve the intelligent cooperation of relief, medical, social, psychological, and educational as well as in all other related fields.

What is perhaps more important for its ultimate success is that measures are included to arouse the interest of those it purposes to help. The program for child welfare thus extends to the family. Such coordination of effort tends to cover the whole field and spells a state of Public Health.

AMONG the numerous efforts at hospital and dispensary developments, none is more instructive than that to promote the organization of enlarged pediatric services. Various schemes have been proposed, involving an interlocking of the hospital and dispensary services with the multiple divisions of the dispensary clinics. Special classes have been organized on the basis of chronology, pathology, or social adjustment. There has been a tremendous impetus to increase the social value of hospitals and dispensaries through the establishment of the humanized outlook upon the problems of infancy and childhood. The exceedingly important part that ignorance and poverty play in the causation, maintenance, and variation of handicaps, defects, and diseases of childhood is well known, though by no means as widely acknowledged as the truth warrants.

Emphasis on Incipient Disease

Modern medicine is constituted for many by the dramatic preventive aspects whose primary significance is illustrated through such accomplishments as the building of the Panama Canal, the reduction of the mortality of tuberculosis, the campaign against the control of venereal diseases, typhoid fever among armies, the conquest of malarial diseases, and the sanitary and hygienic control of infantile diseases. Socially, the main influence in preventive medicine is found in the instrumentalities that work through families or through the community. Prenatal clinics, infant welfare stations, and clinics for children of pre-school age exert their maximum benefits by direct influence upon the parents, particularly the mothers, and serve to raise the standard of the home environment, even though the means employed are purely educational. When one approaches the work of the medical inspectors of schools and school nurses, it is appreciated that the main efforts are along the lines of detecting incipient diseases and handicaps or defects, prompt attention to which improves the physical well being of individual children.

Communal efforts at raising familial standards are found in enactments relating to housing regulations concerning garbage and sewage disposal, the protection of water and food supplies, and similar well known santary rulings. Of equal value are such efforts as are made to secure legislation dealing with accidents and diseases, establishing minimum wage laws, advocating shorter hours of labor, and establishing control over hazardous industries.

Thus far hospitals and dispensaries have been regarded, for the most part, as agencies mainly concerned in the treatment of diseased individuals. In some few instances this concept has been expanded to include the maximum physical rehabilitation of the patient, by means of physiotherapy, occupational therapy, and vocational re-adjustment. As a whole, our hospital and dispensary system has been backward in recognizing the advances in prophylactic medicine, and in expanding or readjusting their organization so as to apply the principles of preventive medicine in their current relations with patients.

In a sense, curative medicine and preventive medicine are not antagonistic in purpose, but both aim to advance public health. The cure of diphtheria, typhoid fever, and tuberculosis by the elimination of foci of infection presents a definite prophylactic phase. The prevention of diphtheria and typhoid fever, however, is far more useful to the community, is more economically accomplished, and results in a more adequate protection for the community than is secured through a delay of the protective machinery until after such diseases already exist. It is for this reason that one notes with especial interest every attempt to readjust hospital and dispensary methods to the point of view of preventive medicine. After all, the essential and motivating factor is the point of view that recognizes the possibility of enhancing public welfare through inhibiting disease factors; that appreciates familial health as the foundation of public health; that realizes the worth of educational and social agencies in the safeguarding of individual, familial, and communal welfare.

A New Departure at Mount Sinai

A little over a year ago at the Mount Sinai Hospital dispensary there was laid the foundation of a dispensary plan for creating a department of preventive medicine. The point of departure was found in the establishment of a class whose original aim was to help children of the pre-school age. This was selected in view of the fact that medical inspection of schools had revealed a large percentage of children suffering from a great variety of defects and handicaps, most of which might have been obviated by attention during the pre-school age, while others might have been eliminated previous to entrance upon school. It appeared desirable to attend to the physical welfare of the children before the beginning of their school career in order that they might be properly prepared for undergoing the educational processes. It appeared rational to put them in fit condition, thus making them potentially most capable of receiving what is termed an education. It required but a few sessions of the class for pre-school age children to make manifest the folly of limiting the service to the children of the pre-school age group. Few of the children were without brothers and sisters, and the interrelations of family life made it necessary to attack the problems of each child on a familial basis. As a result, the Health Class for children widened its conception of its duties and responsibilities, and aimed to function in the larger sphere of familial health.

More than a year has passed, and I am therefore able to pass judgment upon my efforts and to evaluate the

results of the class management. More than four hundred children have been under care, about 50 per cent of whom were of the pre-school age. More than half of the children had previously been under the care of a private or clinic physician. A large proportion of the youngsters were not believed to be other than healthy. From the beginning, I have held to the idea that a child is more than an anatomic system, offers more problems than those classified as nutritional, respiratory, cardiovascular, or nervous. Each youngster is an organism for whose complete functioning there must be a harmony of physical and mental factors, functioning adequately and without maladjustment in its own particular environment. For this reason, I selected the term "Health Class" as indicating my interest in the general health of children. It is impossible to begin prophylactic work with children without concern for their nutrition, but inasmuch as nutrition itself is dependent upon various other factors, it is patent that the term nutritional class does not satisfactorily describe its purpose. While some children give evidence of cardiac impairment, many of these disorders are functional; they respond to improved nourishment, and it would be far-fetched to call the class a cardiac clinic. Many children are mentally retarded; they possess low intelligence quotients, and although they are given the advice and treatment indicated for their improvement, I do not deem it wise to call the class one for mental hygiene. A number of children present serious problems of conduct and behavior, but it would be inaccurate to refer to the class as one devoted to the psychological problems of childhood. As a matter of fact, the whole health of the child is the subject for consideration, whether it involves the physical, mental, or moral phases.

At the present time, it would be possible to describe my efforts as leading to a more thorough understanding of childhood in all directions, involving cooperation with every available agency interested in, and valuable for, promoting child welfare. These include relief, medical, social, psychological, and educational groups. In the beginning the children were referred to the Health Class from the Social Service Department of Mount Sinai Hospital. After a short time the individual members of the class were responsible for rapidly increasing the membership. Later on, children were referred from various special clinics, many by the visiting nurses, the Department of Education, charitable organizations, public school visiting teachers, infant welfare stations, private physicians, and individuals generally interested in preventive medicine.

The Case of Jane Doe

To understand the workings of the class, it might be well to follow a typical child through its machinery. Little Jane Doe arrives with her mother and enters the reception room, upon the walls of which are pictures, posters, and a variety of educational material. While awaiting her turn, the youngster is permitted to play with toys that are available, read a book, draw on the blackboard, talk to other children and otherwise conduct herself in a normal child-like manner. The mother may be interested in one or more of the wall charts, or may possibly examine an exhibit of the proper shoes for children, an exhibit of a child's breakfast, or other material designed to catch her attention and stimulate her enthusiasm for the health lessons she is to receive.

In turn, Jane Doe and mother are taken by the social service nurse to a desk where a general history is taken by a volunteer aid, after which the child is weighed and measured, the shoes and heavy clothing being removed. She is then permitted the utmost freedom until her time for medical examination arrives, when a physician examines the child, who is stripped, and makes a complete record of her physical condition. Let us assume that Jane was slightly below weight for her age and height, had very much enlarged tonsils and adenoids, several carious teeth, pediculosis capitis, and a pronated foot. This is not an unusual picture and will serve to indicate some further procedures. The doctor has ascertained the hours of rising and retiring, the type of dietary employed in the home, the use of stimulants, and such other factors as are pertinent. After completing his examination he discusses Jane with her mother, pointing out the various defects noted, suggesting the type of dietary that is to be employed and the necessity of giving careful attention to the various defects that are present. There is reassurance as to the ultimate outcome for the child and the advantage of following advice is emphasized. A note is made on the history blank that the social visitor, who also is a nurse, when going to the home, shall give such instruction as is required in the particular home that will lead to the elimination of pediculosis capitis, and will inform the mother how to make the requisite budgetary adjustment to enable Jane to receive the milk, cereals, and green vegetables that she requires, instituting a requirement which will obviously benefit the rest of the children constituting the new generation in the household. Jane is referred to the dentist, the Nose and Throat Department, and the Orthopedic Department. The social worker makes the appointments for each of these visitations in order of necessity, and informs Mrs. Doe that she will soon call upon her. Thus ends the first day at the class, with the giving of a card of admission to the mother. I may say at this time that there is no fee for the service thus given.

The social visitor visits the home during the week, imparts the information as directed, and makes the necessary social investigation. It is found, let us assume, that Mrs. Doe earns seventeen dollars a week, and lives as a widow with three children in three rooms, for which she pays twenty dollars a month. It is ascertained that a charitable institution is interested in her, that she is willing to cooperate, but has become somewhat discouraged. Jane has been in school one year, and was left back one term. Jane is the oldest of the three children. Before the next visit to the class the Nose and Throat Department has seen Jane and reports that the tonsils must be removed, thus corroborating the original judgment of the examiner. The orthopedist states that the inner soles should have a quarter of an inch lift to aid in correcting the beginning deformity. The reports from the special clinics are noted on the history cards. Corrective exercises are prescribed for faulty posture and the child is taught the correct position of standing and advised to practice her exercises daily, before a mirror if possible. On the second visit one week later, Jane is found to have gained one-fourth of a pound; her hair has been cleaned with larkspur, and an effort has been made to free the head from nits. She reports that she has been drinking two glasses of milk a day, and has stopped all her coffee. She now goes to bed at eight o'clock instead of nine. Mother and child are complimented, and the child is given a little book to take home because she seemed interested in it and not because she asked for it. The following week she returns after having had a first visit to the dentist, which is the beginning of the corrective dentistry that is necessary. The social visitor gives her a tooth brush, and the doctor urges her

to make use of it. She has gained again, and is ready to follow out the dietetic injunctions with regularity.

During the course of the next few weeks her tonsils and adenoids are removed following which there is the customary loss in weight, and after that she rapidly improves in nutrition, until at the end of six months she has completely made up her deficiency and possesses an improved vitality, greater interest in her own welfare, and the family is cooperating as a whole for the improvement of personal health. I may say, also, that by this time Jane's brothers and sisters have been enrolled as members of the class, and have undergone similar examinations with follow-up work leading to the necessary corrections. Ordinarily, Jane would have been classified as being fit for a nutritional class. In view of all that was done for her, one would not be justified in regarding her state as merely impaired nutrition. A modification of dietary would have been insufficient. It is true that her nutrition improved with every new adjustment of her physical structure, but her health as a whole was under consideration.

The Health Class a Clearing House

The Health Class has thus served as a clearing house for other clinical departments, but the essential point of departure lies in the fact that the children are merely referred to other branches of the dispensary for specific service and immediately return to the Health Class for continued oversight, direction, and guidance. All elements entering into the welfare of the child are secured through the medium of the Health Class, and the interpretation of all results of counsel comes from the examiners of the Health Class. Under this plan children are not divided up into pathological sections, or stigmatized by being placed in one particular group with which they must continually report, as if their whole lives had to be centered about one particular portion of their anatomy or their destinies were to be determined by one phase of maladjustment.

While I have given a type illustration, I may say that the average number of physical defects per child has been found to be three; the combination, however, varying greatly, particularly among those possessing five to eight defects each.

New Impulses Arise

It is difficult to analyze the various types of children whose health has been improved, nor will a cold statistical tabulation suffice to indicate the character of work performed. From the standpoint of gain in weight and height it is possible to establish certain figures demonstrating a fact without need of proof, that normal children, properly and adequately fed, under conditions of reasonable hygiene, will exhibit normal growth, as evidenced in weight and height. For the sake of a clearer elucidation of the ideas that have been followed I shall refer to certain particular types of children to indicate the breadth of the field that is to be tilled. This becomes necessary because it is practically impossible to arrange statistically increased hope and happiness, better behavior and more cheerful home service, improved speech, motor coordination, application, concentration. One can enumerate the number of children cured of nail biting, enuresis, lisping, or the number referred to special classes, to institutions, to picnics, the circus, etc.; but these fail to tell the story of child improvement. There is no adequate numerical index of joy, social impulse, educational interest, the release from fear, or self control, though patently these enter into the health of children. Wherefore, I omit tables showing the number of defects observed and corrected, the gains in weight, the average time under direction, etc.

The B. family, consisting of four children, was referred by the orthopedic clinic because the youngest child, age twenty months, was unable to walk and the other children showed profound disturbances of a rachitic character. The rickets in these children resulted from prolonged lactation with inadequate diet. Discontinuance of the breast, and a new dietary sufficed to enable the youngster to walk within one month and he was then referred back to the orthopedic clinic for such specific care as might be required. A second child, with pronounced *genu valgum*, and tremendous bowing of the legs, after a short period of dietetic reconstruction walked more easily, and was referred for surgical correction of the deformity. The youngest child had a severe eczema and, later, a furunculosis, for which attention was given at the dermatological clinic, during which period the child continued to have the necessary corrections made for enlarged tonsils and improper feeding. The entire family received the benefit of the advice of the social worker and the physician. Family rehabilitation was a primary result of the children's problems.

Alfred D., a handsome boy of eleven, with a mental age of eight, was referred by some member of the class because his mother was complaining of his fits of temper. Investigation revealed that three younger children of normal mentality were abusing him, calling him "fool," and provoking him in other ways. These children were seen, their cooperation solicited, and the mother informed of the need for more understanding of the peculiarities of the defective child. The school was visited and arrangements made for following his work in an ungraded class. The mother was given personal advice concerning educational methods to be employed in developing her child, and was instructed regarding the advantages and methods of a concrete education in the home, and the benefits of occupational opportunities. The end result was most satisfactory. The home is now harmonized, the fits of temper having subsided, and school work has progressed most favorably. Three other children in the family have received dental correction, and training in posture. The family dietary has been revised, thumb-sucking by one youngster has been overcome, as well as enuresis. The mother has attended a dietetic class, and is anxious to cooperate in every way to maintain the family welfare upon the high plane which has been suggested for her.

Little P. R., aged six, was referred by a pediatric clinic as a probable defective. On original presentation at the class the child was a pathetic picture, unwilling to enter the room, with a countenance perfectly blank, hostile, obstinate, distinctly repressed and unhappy. He would not play with other children, moped at home, made use of no toys, and was thoroughly evidencing antisocial attitudes that were a serious handicap to the development of his personality. Physically, he was an excellent specimen, comparatively free from significant defects. Within one month, after familial training, and an effort to handle him understandingly, his true character emerged. He began to play, to smile and laugh, to talk, to read, and, having been placed in school at the suggestion of the examiner, he evidenced a capability commensurate with the estimate of his intelligence. In other words, he functioned as a normal child of six. Despite an attack of pneumonia and empyema he has continued to live and act normally, and a suspected defective is prepared to develop and live as a normal child, freed from the incubus of being misunderstood.

Fannie W., aged twelve, while originally examined as part of a family of four, all of whom were below weight, was taught to overcome her expressed dislike for the types of foods most helpful to her. She soon gained sufficient strength to make up her nutritional disability to resume a normal posture, and to fight hard for the overcoming of the persistent habit of nail biting.

A six-year-old child, said to be exceedingly vicious, was brought to the class, principally because of his addiction to cigarettes. His ambition to become a pugilist was recognized, and the fact that his cigarette smoking was merely part of a desire to imitate manliness made it possible to work with him on a sound basis, which soon resulted in freeing him from his addiction. Incidentally, his teeth received attention, and his underweight was corrected, while the family was being instructed in the

proper methods of meeting his exhibitions of irritability.

A large number of children have been educationally readjusted through the utilization of mothers, brothers, and sisters who have received personal instruction in matters of education, as well as suggestions concerning the methods of interesting children in the common branches. For example, a partially deaf child, at the age of eight, incapable of measuring up to the standards of a five-year-old child was accordingly regarded by the parents and relatives as mentally deficient. The class referred her to a school for the deaf where excellent progress is now being made. Similar adjustments have been made for the blind, or partially blind, for high grade imbeciles and morons, whose physical welfare has received constant attention while the educational work was being continued at the regular schools. The class has fostered the mental attitude and has sought to aid the moral growth of the children. Speech defects, such as lisping, stammering, lallation, and defective voice placing have received careful study and attention, and are not passed over as being unrelated to physical well being. The effects of such speech defects upon character are well known and for this reason every effort has been made to cure children suffering from these handicaps. Practically every one of the children in this category has been cured.

A number of children presenting mental defects which were suspected of having their origin in disturbances of endocrine glands, have, after reports to and from the neurological clinic, received the requisite medication indicated for their improvement. Results in this direction have not been completely satisfactory, due to the lack of complete knowledge upon this phase of work. It has been possible to begin early work with cretins, a few of which have presented themselves.

In several instances children have been referred as suffering with conditions for which surgical relief has been indicated, as the presence of hydrocephalus, and brain tumor. Two instances have been noted of fractures of the clavicle, in which treatment for rheumatism had been instituted before the children entered the class. These were promptly cared for in the surgical department.

Outside of the medicaments given to defectives, practically no drugs are employed. Food, hygiene, water, rest, family adjustments, attention to posture, and training of the bowels have sufficed as active factors in the relief of the majority of conditions which the children presented. There are no pills for constipation, no drugs for enuresis, no bromides for nervous manifestations. Even the large group of children with cardiac murmurs are given an opportunity to lose their functional disturbances under natural conditions. When indicated, electrocardiograms are taken, the x-rays are employed, and consultation with a cardiac specialist is requested. The children, however, are not referred to a cardiac class for regular attention, but always return after examination to the Health Class for continuance of the general oversight of their welfare and development.

I need not call attention to the advantage of health service of this kind. Not merely does it suffice to detect incipient chorea, beginning spinal curvature, dental decay, diseased tonsils, small hernia, early tuberculosis, and enlarged glands, but it enables the prompt institution of the special treatment for these defects. Far more important is the opportunity for examining supposedly normal and healthy children with a view to preventing the development of these numerous defects, and the purpose of raising the standard of personal efficiency. I have not dwelt upon examination of the eye, nose, and throat, because these have long been recognized as of immense importance, but I cannot avoid emphasizing the increased benefit of such examination, whenever possible, prior to entrance upon school work.

The Service Many Sided

In the accomplishment of the work thus briefly and inadequately described, there are required physicians and social workers as a nucleus. In addition thereto much is to be gained from the services of a clinical psychologist, a trained teacher of domestic science, and volunteer aids willing to take histories, entertain children, and assist generally in making and keeping appointments with different agencies to which children must go for particular services. While this personnel is requisite for the best type of health service, much can be gained by beginning the class with only doctors and social service nurses. It is essential, however, that the examiners possess some familiarity with mental hygiene, educational methods, and social agencies, even though without a sound understanding of the social approach to medical problems. It is difficult to secure doctors whose basic ideas of medicine are thoroughly adapted to the concept of preventive medicine in its social relations. This is, perhaps, the greatest obstacle that must be overcome by one desirous of establishing a health class founded on the broadest lines.

In the Health Class at Mount Sinai Hospital dispensary, I have endeavored to apply the principles of public health education in every way possible. Wherever a parent or child turns, there is material from which knowledge may be derived, either at a glance or as a result of reading for a moment or two. Exhibits, frequently changed, are carefully set up to attack various problems in dietetics and clothing. Here and there are pictures, utilized for their mere beauty, colorfulness, and attractiveness, designed principally to train the eye to seek for the various more important messages hung upon the wall.

To establish an atmosphere of friendliness, all discipline is abolished save the self-discipline of a group possessing a common interest. The weighings and measurings are not in private, but are public, so as to create a competitive spirit and a helpful interest in the welfare of others. Toys, games, books, and a blackboard are at hand for use before, during, and after the period directly devoted to the study of the children. An expert dietitian has held classes for mothers and for children with much profit and benefit. It is my intention, with the cordial assistance of the social service department of the hospital, to establish various types of classes for children in order to capitalize their interest, not merely in their own health but in the progress of the class.

It is rather astonishing to the visitor to note examinations and consultations being given in the presence of many parents and children, but without undue excitement or disturbance. This feeling of friendliness in the group is a most hopeful sign, particularly when in the group one finds brothers and sisters, mothers, fathers, and other relatives who have come to care for children and to receive the advice that is available. It is equally striking to note that some of the children would feel lost without their weekly visit.

The follow-up work is such, that practically every family is visited once a month. Nearly every child reports as frequently, though the large majority of children are so thoroughly serious in their health work that they return even though their presence is not solicited. Many of the children have reported more than forty times out of a possible fifty-two visits a year. For the first few

months weekly visits are required in order to keep close check upon the progress that is made in the improvement of the child and in carrying out the orders given for special examinations, dietetic revision, etc. After the few first months, visits need not be made so frequently, though it is well to encourage children to return as frequently as they desire when their interest has been claimed. At times it is necessary to send for children who have not returned within a two-month period, but this is an exceedingly rare occurrence.

The Mother's Part

Another little device of psychological value, has been the establishing of three types of admission cards for parents. Too often the long suffering parent receives little recognition for her solicitude, her devotion, and her efforts at cooperation. In appreciation of this fact different colored cards of admission are employed for those first coming to the class, those who manifest their interest and endeavor to carry out the instructions, and those who show through their children that their enthusiasm and complete cooperation have been of an unusually high standard. The mothers have recognized their promotions through changed cards with evidences of pride and understanding which have been reflected in their keener efforts to abide by the rules of the class.

In this desultory description of some of the phases of work of the Health Class I have attempted to outline its purpose and its methods. It is, in a sense, a health center that is an integral part of the dispensary system of the Mount Sinai Hospital dispensary. Its effectiveness has been increased through the splendid cooperation of all the clinics of the dispensary, the superintendent of the hospital, the Board of Trustees, the Social Service Auxiliary of the hospital, and all those whose work with the hospital has proved the importance of preventive medicine.

The Health Class is, in fine, an attempt at applying humanized and socialized medicine, employing all medical, psychological, educational, and economic measures to built up a new generation. It is founded on the positive idea of health, rather than the negative idea of disease; it visualizes physical, mental, and moral potentials; it shifts the emphasis of dispensary work to prevention rather than cure; it aims to make health contagious; its machinery is simple; its methods are diverse, but rational; its service is directed to the children, and their families. Its results are powerful for bettering and strengthening familial life, and for improving the physical mental and moral well being of the children who are the potential citizens of tomorrow.

CHAIR IN THROAT SPECIALTIES

The first medical chair in bronchoscopy and oesophagoscopy has been established in the Graduate School of Medicine in the University of Pennsylvania. It will be filled by Chevalier Jackson, M.D., of Philadelphia, an eminent authority on these subjects.

When society has 60 per cent instead of 30 per cent who have income, home, and character, a new public opinion will take from the poor their poverty by institutional measures which do what personal case-work cannot accomplish.—Patten.

Science is teaching man to know and reverence truth, and to believe that only as far as he knows and loves it can he live worthily on earth, and vindicate the dignity of his spirit.—Harvey.

ELEMENTS ESSENTIAL TO NUTRITION

THERE is current the notion that somehow out of the nutritional experience of the race appetites and instincts are developed which constitute a safe guide to secure efficient nutrition. This theory, however, does not take into consideration that instincts become perverted, that natural foods are treated artificially, that losses are entailed when foods are dried or heated for preservative or other purposes, and that foods sealed and kept for long periods may not subserve proper nutrition. To the naive view that the quantity eaten is the one important factor, has been added some general notion of the essential constituents of a ration properly balanced as to proportions of proteins, carbohydrates, fat, and mineral salts.

Food values, then, are not to be estimated on a quantitative basis, nor even from standards of energy supply. It is quite possible to eat regularly, until the appetite is satisfied, of well prepared and palatable foods and still suffer from a deficiency disease. Vague diseases of serious import may be traced to errors in diet and no adequate understanding of disturbances in health is to be arrived at without a study of food habits, the supply and distribution of natural foods, and of family budgets.

Underwood and Underwood.

Chemists of the United States Public Health Service laboratories conducting experiments in an effort to determine what vital ingredients are absent in certain prepared foods, believed to cause some of the common but still obscure dietetic diseases.

Even then a diet may be inefficient and the chemist may need to be called to demonstrate the presence or absence of vitamines, the deprivation of which may cause widespread diseases, like pellagra, beriberi, rickets, or scurvy—diseases which formerly were misunderstood and wrongly treated. The public health laboratories are continuously conducting tests and experiments to determine causes of common but obscure dietetic diseases. S. P. M.

SURVEY OF FEEBLEMINDED IN MISSOURI

The National Committee for Mental Hygiene has been invited by Governor Frederick D. Gardiner of Missouri to undertake a survey of the conditions of the feebleminded in that state with a view to ascertaining the expense of their neglect and what economies can be effected by the training and custody of such persons. The survey is under the jurisdiction of Dr. Thomas H. Haines, of Columbus, O., who has made similar surveys for the Committee in Kentucky, Tennessee, Alabama, and Missouri. Mr. C. L. Hultgren is assistant.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M OLMSTED, R. N., *Editor*

MISSOURI NURSES PLAN RADICAL CHANGES

WE HAVE always thought that Missourians had to be shown, but we know now that the Missouri nurses are taking the lead in solving the nursing problems of this country. They will soon show us all what can be done in legislative and educational matters pertaining to nursing.

A meeting of the Missouri State Nurses' Association was held in Kansas City, Mo., October 20 to 23, attended by about four hundred nurses. The program was intensely interesting and worth while. The most encouraging spirit pervaded the entire conference, the spirit of responsibility being shared by each individual nurse and not confined to just the few leaders as is so often seen at many of our meetings. There were many leaders, and many interesting discussions resulted.

The Missouri State Nurses' Association is about to launch a legislative campaign worthy of note. Miss Helen Hoy Greeley, the attorney who did such memorable work in securing rank for nurses, is in Missouri now at the invitation of the State Nurses' Association, and plans are being made for a campaign headquarters. Bills are being studied and a model one for Missouri is being prepared which will cover the raising of educational entrance requirements for schools of nursing, compulsory registration of both nurses and bedside attendants, and state inspection of schools for nurses.

Miss Sara E. Parsons is also spending some weeks in Missouri in order to secure adequate and convincing material to place before the people concerning the need of certain legislative changes. Miss Parsons, one of the best known and best informed women in the profession, has become prominent through what she has been able to achieve as superintendent of nurses of Massachusetts General Hospital. Her work in Missouri will include a complete survey of Missouri schools for nurses. The report of her findings will undoubtedly do much to interest hospital board members in the proposed legislation, and the extreme need of making the schools and the profession more attractive to young women.

Educational institutions are everywhere overcrowded, and it is logical to assume that just as soon as the people begin to realize that the shortage of nurses, which will directly affect them sooner or later, is primarily due to the fact that nursing education has never been put on a par with education for women in other fields, the entire public will favor the proposed legislation to remedy this defect.

No business man, when he develops pneumonia, wants to be cared for by a partly trained, ignorant woman who is unable to carry out efficiently the doctor's orders, or who would be unable to watch for and recognize dangerous symptoms in time to save the life of his sick baby. No woman wants to feel doubtful about the skill and intelligence of her nurse at time of acute illness or operation, and no group of women interested in developing Visiting Nurse Service or Child Welfare Nursing wants nurses so handicapped by lack of fundamental education and training that their associations fail to accomplish the much needed results.

It is safe to predict that the men and women of Missouri are going to lend a strong favorable backing to efforts of the nurses of their state to gain that status which will give the public a much finer, better prepared, more efficient nursing service for care of sick in homes, hospitals, and in public health activities.

The boards of directors of every hospital in the state should get back of this legislation and push, because it is recognized all over the United States, since at the present time the only schools for nursing which have sufficient number of student nurses are those which have the reputation of holding high educational standards. Just as soon as schools for nurses require four year high school entrance requirements, charge a tuition instead of offering a pittance, called an allowance, and give a liberal, well planned education which will attract, not repel, the average young woman of this country,—then will be solved the problem now confronting every hospital, that of furnishing adequate nursing care to the sick.

Perhaps one of the most advanced steps taken anywhere in improving educational advantages of nurses' training is the affiliation of eight schools for nurses in Kansas City with the Junior College of that city. The student nurses entering these schools get five months of practical and theoretical work at the college before taking up the nursing work in the hospital. This grouping for educational purposes and affiliating with recognized educational institutions has many advantages; not least of these in importance is the fact that it is proving a strong drawing card, and is interesting many young women in becoming nurses who scorn the training schools because they want to be educated without being loaded down with the drudgery of physical labor.

The proposed Division of Public Health Nursing for the Missouri State Department of Health is a noteworthy step in the right direction and if passed as now planned will justify all the labor and thought given it, as it will establish public health nursing in Missouri on an enduring basis.

The nurses of Missouri are making a much needed contribution to the development of nursing work at the right time. They are meeting the situation with large vision, with unbounded energy, and a fine, progressive spirit.

Nursing has received recognition within recent years as a distinct profession. This has been brought about by just such a spirit of altruism on the part of the nurses of the Nation as exists to a marked degree in the Missouri nurses. We admire the firm determination of these nurses to face the facts as they exist, to rid their state of antiquated ideas and methods that encumber progress, and we wish them great success in their efforts to establish nursing in Missouri on the high foundation and to give permanence to the progress made.

INFANT WELFARE WORK IN ATHENS, GREECE*

By MRS. CHARLOTTE HEILMAN, R.N., Athens, Greece

YOU will want to know about our work in Athens, so I will try to give some details in regard to our service. The work has developed out of a baby station that was opened by the American Red Cross during the war, and was taken over by the Greek Patriotic League, which is in fact a part of the Greek government, some time last year. The American Red Cross promised to lend them a nurse for a year to assist them in getting the work organized on a permanent basis and, accordingly, Miss Kathleen D'Olier of Rochester was sent to them, arriving in December, 1919. It was later decided that Miss D'Olier required an assistant, so I was sent in that capacity, arriving April 7, 1920.

In the spring of this year the American Red Cross closed all its work here, and the infant welfare work was taken over by the Junior Red Cross. The real responsibility for the work is with the Patriotic League, which is financing its own activities. We two nurses remained here in an advisory capacity. We take the lead in the work, and plan the routine.

How the Work Is Planned

The chief of the staff is a prominent Greek baby specialist, Dr. Dexidas, who is in charge of the work. He belongs to the Committee, and gives lectures to the volunteers and to the public for publicity. The doctor has one assistant who attends all the conferences and examines the babies. He is paid by the Greek government. There is one Greek nurse who was trained in Boston and had her Public Health course there. She is also in the pay of the Greek government. We have about twenty young Greek women volunteers, most of whom speak English fluently. Some of them are away at present for the summer holidays, but there are twelve who are still at their posts in spite of the heat, which is intense. We also have three Greek soldiers and a maid.

The main station is situated in the heart of the city, in a building that was intended for a soup kitchen. Here we have a large waiting room, doctor's office, the nurses' office, supply rooms, toilets, etc. Two additional stations are located in school buildings in outlying sections of the city. Each station is equipped with the necessary chairs, tables, scales, etc., for the conference.

Division of work is provided for by dividing the city into six districts. There are six conferences each week, so that the babies from each district attend the conference on the same day each week. Babies are enrolled as soon as possible after birth, or before birth—as we are trying to do some prenatal nursing, which is a natural part of baby welfare work. No babies are enrolled after they are three months old, a rule which we made because we want to get them before they have formed bad habits. They are discharged when they are two years old. If the mother is pregnant, a note is made of the fact and she is kept under observation, and is given a card so that she can bring the new baby to be enrolled.

Each supervisor, a graduate nurse, has her own group of volunteers, districts, and days at the Conference. The records for each district are kept in a separate file, and after the Conference each day the cards of those that were absent are looked over to ascertain the reason. Sometimes they are known to be ill, or the mother ill, out of town for a brief holiday, or perhaps transferred temporarily to the Sick Baby Clinic, which is also under the League. If no reason is known, the volunteer takes the name and, if possible, visits the baby before the next Conference.

If there is not cooperation on the mother's part, or if she fails to bring the baby regularly without sufficient reason, the baby is discharged and the card removed to the file of discharged cases. No "dead wood" is kept in the active files.

Each volunteer has her own group of babies, usually about twenty-five, and always as near together as possible, which enables her to see them more often. We are trying to cultivate a neighborhood spirit among the mothers, and, when we can it is planned to have the conferences in each district so as to increase this spirit. Every volunteer is expected to see each of her babies in its home not less than once each month, and to write up her visit on the history card at the station. She makes a full report which she hands in at the Conference of Volunteers each month. They also turn in a copy of their diaries each week. In order to keep a uniform distribution of work the volunteers are asked to enroll one new baby for each baby discharged in their districts. Preference is always given to soldiers' babies, and to those who show a disposition to cooperate, and display an eagerness to learn.

Conferences Held Daily

The station is open from 8:30 to 12 daily, except Sunday or important holidays. A soldier is stationed at the door to give a number card to each mother as she enters. She then passes to the desk, where she shows a small card which is dated by the soldier, who removes the record card from the file and dates it. She then passes into the waiting room. As soon as the mothers are assembled, the Greek nurse gives them a short talk on the care of the baby. She repeats the same talk every day for a week, so that each of the mothers may hear it. The next week her subject changes. For example: one week the subject will be "The New Born Baby;" the next week the nurse will talk on "The Bath," and the next on "Feeding," etc.

After the talk the mothers undress the babies and, according to their numbers, stand in line to have the babies weighed by one of the volunteers. The supervising nurse sits by the scales and looks the babies over from head to foot, questioning the mothers as to diet,

*Excerpts from a letter written by a member of the staff under date of August 1, 1920.

sleep, the condition of the bowels, etc. If the child has lost weight, or any change is indicated, we send it into the doctor's office. I have recommended that a doctor should be there in the place of the supervisor, but at present there is none available. Ill babies are transferred to the Sick Baby Clinic.

We have a number of layettes that were given by the American Red Cross, so that practically every baby is given an outfit, which pleases the mothers very much. We usually do not give the things until the baby has been in regular attendance at the conferences for some time, so that we can tell whether the mother will cooperate or not. The volunteers are taught how to dress the babies. The Greeks dress their babies the same as the Italians, that is, with a swaddling cloth and fascia. We discourage the use of the fascia when the child is in bed, but we understand why they want it when the children are carrying the baby about.

There is a volunteer in the doctors office to assist him and keep the records. We change the work of the girls from week to week so that they have the opportunity to do everything. As a rule, the volunteer attends the Conference only on the day when her babies come, but they are always ready to come on extra days when they are needed to help out. On other days they visit in the homes—usually one day a week, sometimes oftener—or go to clinics or agencies about some of their babies or

Such candidates as these children, who are waiting for the nurse, for the service of the child welfare service at Athens, Greece, are the chief argument in favor of organizing the work on a permanent basis.

other members of the families they visit. They are taking a very intelligent interest in the social side of their work. From time to time the volunteers are accompanied by the Supervisor.

They are wonderful young women, broad minded, intelligent, and they have a splendid grasp of the work and its meaning. They are remarkably faithful, which makes it evident that they are going to continue the work after we leave. Some of the young ladies are doing the work of friends who are away on their holidays, and we appreciate that work undertaken in such heat is not a mere fad, but is evidence of the real interest that they are taking. We are proud of them, and very eager for some of them to go to America or England to take hospital training. They have taken an intelligent interest in the lectures they have had, and they read everything we can give them. They are beginning to realize what sort of women nurses should be.

Nursing Standards Have Suffered

There are no training schools here that attract the right sort of recruits, and the standard of nursing and nurses has not been high. There are a few who have been trained in England or America, but it is rather natural that American nurses should make more impression on the people—perhaps we are more aggressive, while the Greek nurses are hampered by a consciousness of the old prejudice against women who are paid for their work. I was much pleased when the chairwoman of the Committee told me a few days ago that the example of the American nurses has had a splendid effect upon the nursing situation in Greece; that the people here have

This little waif is on her way to the Child Welfare Station, where both mothers and babies are sure of interest and sympathetic care.

learned that being a nurse, even being paid for one's services, is not incompatible with being a nurse.

These young lady volunteers are members of the best families here, and they therefore have the right social contact to interest the best people in the work. The work of volunteers is criticized exactly the same as that of our pupils in Rome, and they take it in the right spirit.

There is no good trained leader to take up the work when we leave; one of our workers is excellent, but she is young, and has not had enough experience to go on alone with the volunteers. I wish very much that the Junior Red Cross would allow us to remain another year, until the work is a little more firmly established. We have had several new volunteers who have begun work since the hot weather began, and when the holidays are over, and it is cooler, others will join us. Naturally, only those that are really worth while would hold on through this heat.

How the People Live

The people with whom we work are very poor, not because they are lazy, but because there is so little work

Almost every garden has a well, simply stoned up. There are many open cisterns. Everywhere there is a lack of sanitary supervision. The sickness rate is high and the infant death rate is given as one in four.

and the wages are so low. There are practically no raw materials, and no fuel for manufactories. The soil is very dry, and there is no water for irrigation near the

city; therefore, there is waste land all about that should be cultivated for gardens. Food is high, milk is scarce and very expensive. There is more goat's milk than cow's milk, because the food for cows is too expensive, while goats pick their own on the mountain side. I am making up a table of rents, wages, etc., in my districts, but my records are not yet completed. The average rent will be about 20 drachmae (a drachmae is about twenty cents) a month, and the average wage about 12 drachmae per working day. Milk for a baby costs at least 2 drachmae per day, and other foods are just as expensive.

The houses consist almost invariably of one room, of mud, brick, or stone, sometimes plastered, sometimes only whitewashed. The roof is usually very low, of tile which is visible from the inside, and the single window is usually very small.

Clothing is even higher. A pair of the cheapest canvas slippers costs 22 drachmae. There is some kind of law governing the age at which children may go to work, but as a matter of fact, they go whenever they can find work.

In my districts the homes consist almost invariably of one room, of mud, brick, or stone, sometimes plastered, sometimes only whitewashed. Tile roof, visible from the inside, earth floor—occasionally wood or cement—one window, and one door with a transom. Sometimes the roof is very low and the window very small, so that the room is damp and dark. The furniture consists of one bed, and a pile of bedding that is spread on the floor at night for the children, a small table, two or three chairs, almost always a little baby bed, a trunk or box, and occasionally a sewing machine, as some of the women take sewing for soldiers or for factories. There are always a few religious pictures and a lamp.

On the whole, I find the homes neat and tidy, with some effort made toward coziness. There is often a little vine or flower of some kind, and perhaps a tree in the yard. There are some advantages in these homes; they are at least not crowded together and, as they are almost all one story, there are no dark passages or stairways. The majority of the poor homes are in the outlying section of the city, on the hills, where they are assured good drainage, a beautiful outlook—which the people seem to appreciate—plenty of sun, and a breeze. Most of the houses are in small groups; each house has perhaps four or five rooms—each occupied by a separate family—all opening into a garden which is uncultivated and is usually surrounded by a mud brick wall. The children all play together, and the women work together. Very often they have a sort of outdoor kitchen which they use in common. Sometimes they each have a little burner—often made out of a Standard Oil gasoline can; but they all do the cooking in the yard. They have very few dishes and many of them do not sit down at the table. Bread is the main article of diet, but they also eat vegetables.

The water supply is very poor. In these outlying districts almost every garden has an open well simply stoned up. Not far away, perhaps within twenty feet, is the toilet, which sometimes has a cemented cesspool, but more often is simply a little hole in the ground, or possibly not even a hole. There is never a toilet seat. Usually we find these places neat, and remarkably free from odor, as most of the people throw lime about from time to time. There are not as many flies as are seen in America, but there are many mosquitoes and much malaria, though it is not apparent where the mosquitoes breed, unless in the many open cisterns about the city.

Few Bed Patients in Homes

Those who are ill usually go to a hospital, so that we do not often find bed patients in the homes. There is much tuberculosis. The infant death rate is given as one in four.

There is much to be done here. The people seem to realize it, but the country has been at war so much that it is far from rich. They need better schools, better houses, and more work almost more than anything else.

Many difficulties are encountered in directing the feeding of the babies. Mother's milk is, of course, advised and insisted upon when possible. Some have supplementary feedings of goat's milk if the mother can buy it or, if it seems imperative, the League buys it. Ordinarily the supplementary feedings are of condensed milk which is furnished by the League, not that we approve of the condensed milk, but it is the best that we can do just now. The addition of other foods and the general routine of feeding is about the same as that to which we are accustomed.

There are certain superstitions here more or less the same as those met with in Italy. The people believe in "the evil eye" and not infrequently give it as the cause of death of the babies. Many of the babies wear a string of blue beads around the wrist to protect them from this influence. Horses also wear a necklace of blue beads for the same reason. One of the mothers who has nephritis believes firmly that her blue beads will make the albumin disappear from her urine.

We have been trying to map out a program for the future, that is, for the time when we must leave, but as yet we have not arrived at anything that is satisfactory.

On the whole the houses are neat and tidy. Usually a vine or flower of some kind, or a tree, shows the effort to make them cosy. The houses are in small groups. The children all play together, the women work together, and often they have outdoor kitchens which they use in common.

We have thought of a course similar to that which we gave in Rome, but there are not the right kind of pupils available. The young ladies who are doing the work now are of such a fine type that we do not want to lower the standard already set. It seems that it might be better to try to find a good leader and go on with the volunteers, since they have done so well. We see greater interest and capability each month and feel that, if we do keep on, some of them could be induced to go away and take training. Some scholarships would be required

in such a case, for some of them have not a very large income and could not afford the expense of the trip and the training for three years, though they would probably accept a scholarship. It only remains for someone to take the lead and the rest will follow.

Much Interest in the Work

Besides our work, our life is full of variety and interest. There are about one hundred Americans, members of the Legation Staff, the Consul and his staff, the Young Men's Christian Association workers, the Standard Oil people, and a number of other Americans in import trade. At present there is also a group of American engineers who are working on a water and sewage system for Athens. These engineers have asked us for suggestions as to the most practical way to make a water and sewage system reach all the poorer homes, consisting of one room only, in which it is obviously impossible to have individual taps and toilets.

We have an American Club which has its regular meetings at the Young Men's Christian Association, and we have many dinner parties and picnics. We go sailing, bathing, and have very good times. Many of the men have their wives and families with them, so there are plenty of both sexes. The sea is only a few miles distant—it is within sight in almost all parts of the city, and there is an excellent electric train service every few minutes. There is a wonderful sandy beach, and the most beautiful water imaginable. We can also take a steamer and go for a little holiday on Sunday, returning in the evening, or hire an automobile and go to some of the places of historic interest. On one such occasion we went to Delphi, a most beautiful spot aside from the fascination of its history. Another time, when there was a church holiday, we went for a two day trip to Corinth and down through Peloponnesus, visiting the ruins of Mycenae, Argos, Tiryns, and, most delightful of all, Epidaurus, the most celebrated seat of the cult of Aesculapius, the god of healing. It was here that the sacred snake had its origin. If the place were reconstructed today on the original plan, we would call it an up-to-date sanatorium. The hospital proper was an open air pavilion and there were the gymnasium, baths, games of all sorts, musical exercises, a theater which is almost perfect today and still the favorite model. The one at Berkeley, Calif., is modeled after it. There are also temples for worship.

The buildings were of the most precious marble and of the finest workmanship, and the setting is magnificent, with the most beautiful mountains on all sides and lovely coloring. The atmosphere is so clear and invigorating, as it is near enough to the sea to have the full effect of the sea air. It is no wonder that Hippocrates made a success of his profession, as it was in that spot that he was a student and a doctor. It is perfectly understandable that his tuberculous patients would recover by following his advice to "Take a cow and go live in the mountains."

THE EVOLUTION OF PUBLIC HEALTH NURSING

By ROSE M. EHRENFELD, Supervisor of Public Health Nursing, State Board of Health, Raleigh, N. C.

PUBLIC health nursing is the latest development in the national health movement. Public health nurses were at work here and there before the war, but conditions either revealed or brought about by the war have given to public health nursing such a great impetus that the public health nurse suddenly finds herself the most important single factor in bringing to the citizens of this country an "equal chance for equal health." More than this; she is bringing to the citizens of this country an opportunity for health that is as big as other opportunities that knock at our doors every minute of every day and that we have come to accept as a matter of course.

The work of the public health nurses in cantonment zones and devasted countries was such as to cause the Federal Government to take cognizance of this particular branch of nursing, and the United States Public Health Service created a division of public health nursing; issued a bulletin thereon for distribution from pulpits on National Health Sunday; and their first reconstruction bill before Congress called for provision for community nursing.

Since 1859, when William Rathbone and Florence Nightingale established in Liverpool the first District Nurse Association, public health nursing has gradually and steadily developed. This development has been along two distinct lines.

The first of these has been from the limited field of remedial case work toward the preventive and educational phases, including always the curative. This remedial case work was originally carried on by a benevolent or relief society which frequently gave material aid with nursing care. The natural outcome of the giving of this material assistance was that the public health nurse became known as the "charity nurse" and only those who openly admitted themselves to be very poor were willing to accept her aid.

The second conspicuous line of development in public health nursing has been the gradual change from one type of administration to another. This type of work was originally carried on by a board of representative men and women who undertook the work as a community enterprise for community betterment. They offered professional nursing service to both pay and free patients and the sphere of their activity was limited only by local geography and the lack of transportation facilities. They cooperated with the agency which rightfully supplied material relief.

At the present moment, many changes and re-

adjustments are taking place in the field of public health nursing. Two facts stand out: (1) a nation-wide interest in public health is rapidly developing; (2) there is an alarming shortage of nurses to meet the demands of this growing interest.

Consider the growing interest. In many localities, already existent associations are reorganizing along progressive lines. In many states, provision for nursing supervision is being made with certain standards for nurse, nursing service, and record keeping. Many states are creating bureaus or divisions of public health nursing as a part of the state boards of health. These bureaus are on an equal basis with other bureaus. Other states are providing for state directors or supervising nurses under the state board of health. The twelve states that have adopted one or the other of these post-war programs are: Alabama, Connecticut, Kentucky, Maryland, Minnesota, New Jersey, New York, North Carolina, Ohio, South Carolina, Virgina, and West Virginia. The ultimate aim is to provide public health nurses in a certain proportion to the population of each state, these nurses to work on a standardized basis. Of paramount importance will be the educational and preventive program. This plan will apply equally to remote and congested communities, equally to Texas and New York. Many states have passed laws permitting expenditure of municipal and county funds for public health nursing, while three have legislation providing for a nurse in every county.

Register Industrial Nurses

The latest evidence of increasing interest comes from the Department of Labor which contemplates the establishment of a registry for nurses who have special qualifications and training for industrial nursing. This comes under the Division of Industrial Hygiene and Medicine, the personnel of which has been detailed from the United States Public Health Service to the Working Conditions Service of the Department of Labor.

The Federal Children's Bureau's $8,000 contract with the National Organization covers three experiments in public health nursing made in rural care of mothers and babies—one in an Illinois county, predominatingly "white population"; one in Louisiana, predominatingly "negro"; and one at Wind River Reservation, Wyoming, a predominatingly Indian county. The first year's work will probably be issued as a Children's Bureau bulletin and will not only form an excellent model program for county work but will probably be a force in securing state and Federal legislation to promote public health nursing. Four states already have public health legislation and are directing the service from private agencies to a governmental activity, realizing that nursing is not merely a private or individual service, nor rightfully the function of separate small communities against the menace of disease.

In 1901, there were fifty-eight associations doing public health nursing, with 130 nurses. In 1916 there were 1,992 organizations in 1,496 cities and towns, with 5,152 nurses. With such a retrospect, what may we not expect from the sudden great impetus given by the war?

Plans to Recruit Nurses

Let us consider what is being done to foster this increasing interest in public health and to meet its demands for nurses. Numerous plans are under discussion for recruiting young women into the ranks of the nursing profession and a few of these plans are taking definite shape.

The American Red Cross, an organization standing for a high type of efficiency along nursing lines in both war and peace, is making a threefold contribution to the cause of public health nursing: (1) Changing its Town and Country Nursing Service to a Bureau of Public Health Nursing with a definite policy as to standard of work and qualifications of nurses and providing for thirteen divisional directors; (2) authorizing in communities where no such service exists or is contemplated, the initiation of public health nursing activity, supporting it by chapter funds until support by municipal or state funds can be secured for it, by which provision there are in North Carolina, in four counties, specially trained nurses who are doing for human lives what scientific agriculture is doing for crops; (3) contributing, in addition to a substantial loan fund, a scholarship fund of $100,000 for the purpose of giving to nurses—and especially those returning from war service—a public health nursing course. These scholarships are helping to meet the shortage of public health nurses and also contribute a standardizing influence in the field of public health nursing, because only women who have had special training or the equivalent in experience are eligible through the Public Health Nursing Bureau of the American Red Cross.

Other scholarships are being offered by various organizations. The National Organization for Public Health Nursing, founded 1912, with a membership of three thousand and now having eight thousand members, represents a revolutionizing factor of professional and lay people. It is raising a $150,000 scholarship fund to supplement previous training or experience of graduates and prepare them for public health nursing. It is

also placing literature for distribution to public health nurses, and others interested, at library centers throughout the United States. The Metropolitan Life Insurance Company is providing scholarships and territorial supervision. The General Federation of Women's Clubs is raising from one to three scholarships in some of the states.

Combined courses in public health are being given at universities, affiliating for training in field work with well established nursing organizations; and there are one hundred hospitals now giving to selected seniors a four months' course in some public health nursing school.

All of these opportunities for special preparation put it within the reach of a graduate nurse with high school education to enter the field of public health nursing. It is noteworthy that many college women are entering various hospital training schools, appreciating the possibilities of this field of large horizon and visions of service.

The Need of Special Training

Yet there is a tendency on the part of the nurse to enter this field without special training. This is undesirable from every point of view, unless she is working directly under a well qualified supervising nurse. In the first place, the nurse who lacks special training is at a disadvantage, for the community will rightfully expect service she is unprepared to render and results she is unable to effect. Any community contemplating the establishment of a public health nursing service would do well to delay instituting the work until a woman especially trained for public health work can be secured or a nurse of the locality's choice takes advantage of a scholarship to prepare herself for the field. This is the only way the work can come up to the standard of the Red Cross, the Public Health Bureau, or the National Organization for Public Health Nursing. With rarest exceptions anything less than a standardized work represents a superficial, unsatisfactory, not to be recommended endeavor rather than a contributing force for community health.

It is becoming increasingly evident that, if the public health nursing movement is to acquire its full development, the sick of moderate means must be cared for at a cost which will not leave them financially crippled upon recovery. Consider, for a moment, the convention at Cannes, where an international system of public health service was discussed and at which it was the purpose of the late Miss Delano to be present. May her memory be a constant reminder that we have a life to live as well as a living to make and her sacrifice be our inspiration to prepare ourselves to render a new type of national service that will furnish a high type of nursing service according to the need rather than the income.

Public health nursing has become one of the strongest forces for Americanization, reaching into the homes and teaching the foreign mothers how to interpret sanitary codes and obey quarantine laws; how to select and use American food.

It represents the field of work that is reaching some of the "90 per cent of the sick outside of institutions" with nursing care in their homes. It is extending to the masses prenatal, postnatal, tuberculosis, school, industrial, communicable disease, and general community nursing. In so doing it represents the most important single factor in our national effort to check the slaughter of innocents by the kaiser of ignorance. It represents the instrument by which Democracy's latest vision, "equal opportunity for health" is being practically applied and by which the light of modern science and the warmth of human sympathy is spreading into every corner of the world.

Because the public health nurse has made possible the universal democratic application of public health work, Dr. Wm. H. Welch says: "America has made two great contributions to the cause of public health—the Panama Canal and the Public Health Nurse."

RED CROSS CLINICS IN SALONICA

Nearly fifteen hundred maimed and halt and blind are treated monthly at the American Red Cross Dispensary at Salonica, Greece, under the direction of Dr. William J. Hillas, from Chattanooga, Tenn. Dental work is provided in connection with the dispensary, and a creche and maternity hospital are maintained in connection with a local woman's society. Of the cases that come before Dr. Hillas, 25 per cent are eye troubles, 25 per cent are malaria, and the rest are under miscellaneous classification.

INSIDE HOSPITAL AND FIRST AID CORPS

The access of miners to hospitals varies greatly. They rarely resort to hospitals for sickness. Foreigners are more inclined to take advantage of hospitalization than is the average American. This emergency hospital is stationed right in one of the mines of the Kingston Coal Company. First aid is well prepared for at the mines, but quarters for the sick are lamentably scarce.

MEDICAL INSPECTION OF SCHOOLS IN PENNSYLVANIA

By GEORGE K. STRODE, B.S., M.D., International Health Board, New York City, Formerly Chief of the Division of School Health, State Department of Health, Harrisburg, Pa.

ALONG with other special health activities in the United States, school inspection was given a tremendous impetus by our experience in the great war. Today there seems to be a more general appreciation of the intrinsic and extrinsic worth of such work than three years ago. Doubtless the findings of the draft boards were to a considerable extent instrumental in this rapid spread of interest. The ultimate result of awakened public interest, namely, more and better school inspection, has not so far resulted. As formerly, the bulk of the work is still done in the larger cities. School inspection carried out on a state wide plan is the exception rather than the rule, and for this reason it seems appropriate to discuss Pennsylvania's experience. It will be our object to point out our shortcomings and failures as well as our successes.

State Wide School Inspection

Since 1911 the laws of the Commonwealth of Pennsylvania have provided for medical inspection in the public schools. Prior to the enactment of this law the State Department of Health had carried out an experimental inspection in three large and populous counties. This inspection, comprehending as it did rural districts alone, showed that less than half of the pupils could be classed as normal. The law makers were probably influenced by the results of this experiment, since they provided for medical and sanitary inspection of schools in the School Code which was adopted the succeeding year. Prior to the enactment of the Code, Philadelphia had already been carrying out medical inspection in its schools since 1898 and Pittsburgh since 1910.

In Pennsylvania each city, incorporated borough, or township constitutes a separate school district and each district is controlled by a local board of school directors. Cities with a population of five hundred thousand or more constitute districts of the first class; we have two such school districts, Philadelphia and Pittsburgh. Districts

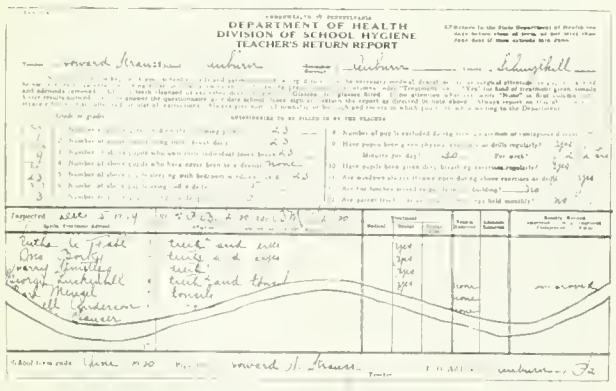

DEPARTMENT OF HEALTH
DIVISION OF SCHOOL HYGIENE
TEACHER'S RETURN REPORT

Fig. 1.—This report incorporates data gained from the examinations through which the pupils in the public schools of Pennsylvania must pass.

with a population between five hundred thousand and thirty thousand are second class; there are fifteen of these districts in Pennsylvania. There are one hundred and ninety-one districts with a population ranging between thirty thousand and five thousand designated third class. Lastly, there are 2,385 districts with less than five thousand population; these so-called fourth class districts are almost wholly rural.

As originally enacted, school inspection was compulsory only in first and second class school districts. The boards of school directors of the third and fourth class districts might elect to have medical inspection, but it was not made compulsory. Advantage of this option was taken

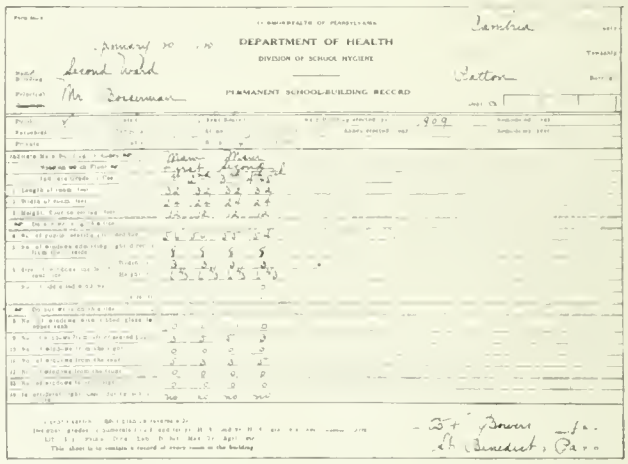

DEPARTMENT OF HEALTH
DIVISION OF SCHOOL HYGIENE
PERMANENT SCHOOL-BUILDING RECORD

Fig. 2.—These data form a part of the permanent record of the sanitary survey of the school plant. A follow-up record of each fourth class school is kept on file in the central office.

by 1,617 of the 2,385 fourth class districts and by most of the 191 third class districts during the first inspection in 1911-1912. Year by year the option was less and less used until in 1918-1919 but sixty-three fourth class districts and ninety-two third class districts rejected inspection. This reflects a healthy state of mind on the part of school directors so far as an appreciation of the value of school inspection is concerned. In view of the general acceptance of medical inspection, the law was amended in 1919 so that it became compulsory in all districts.

The School Inspection Law

In every school district which is required to provide medical inspection for its public schools the secretary of the school board or the superintendent must report annually to the Commissioner of Health the names of the medical inspectors; if medical inspection is not furnished within a stated period, the Commissioner of Health is required to appoint an inspector and fix the compensation for the same which shall be paid by the district.

The law requires that at least once each year the medical inspector shall test and examine all pupils in the public schools, giving special attention to defective sight, hearing, teeth, or other disabilities and defects specified by the Commissioner of Health in his directions for medical examination of schools. The requirement that the Commissioner of Health shall give directions for the med-

ical examination of schools is a wise provision and of the greatest importance from the administration standpoint, as it makes possible standardized work in every district of the Commonwealth.

The medical inspector is required to make to the teacher or, if the board of school directors so specify, to the principal or district superintendent of schools, a written report concerning all pupils found to be in need of medical and surgical attention and to give careful directions concerning the care of each pupil who needs special care while in school. The teacher, principal, or superintendent must keep such reports until the end of the school year and shall carry out as carefully as possible the directions concerning special care of pupils while in school and shall promptly send a copy of the inspector's report upon each pupil to the parents or guardians thereof.

Further, the inspector must report to the Commissioner of Health the results of examinations. Special blanks are provided for such reports. These reports enable us in

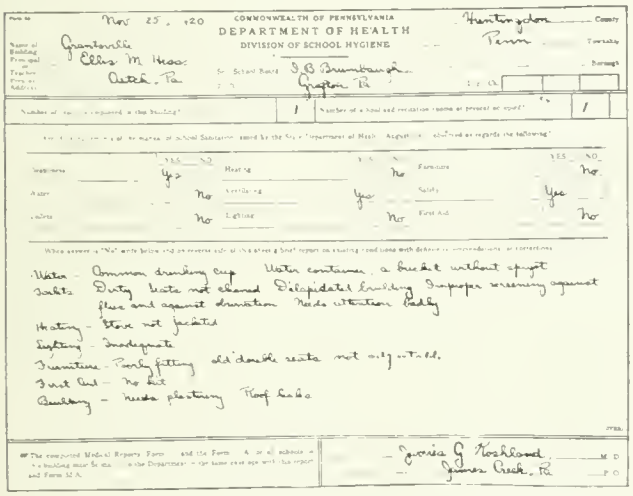

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
DIVISION OF SCHOOL HYGIENE

Fig. 3.—Nine major topics engage the attention of the sanitary inspector of schools, the minimum standards to be met being established in a prepared manual of school sanitary standards.

a measure to appraise the worth of work in every school district.

In addition to the above mentioned duties of school inspectors it should be stated that he must make a careful examination of all privies, water closets, urinals, cellars, water supplies, drinking vessels, utensils, and such additional examinations of the sanitary condition of the school buildings and grounds as the regulations of the State Department of Health direct. To facilitate the inspection and maintain a reasonable standard of excellence, the State Department of Health has issued a manual of school sanitation which fixes the minimum requirements of sanitation for the school plant.

School nurses are authorized by the law but are not made mandatory. This is unfortunate, since the effectiveness of the work is so dependent on nursing service.

Any school district may provide for the care and treatment of defective eyes and teeth of pupils. This is done in many of the larger districts, which also care for the tuberculous, the malnourished, the gravely retarded pupils, and those deaf or affected with speech defects.

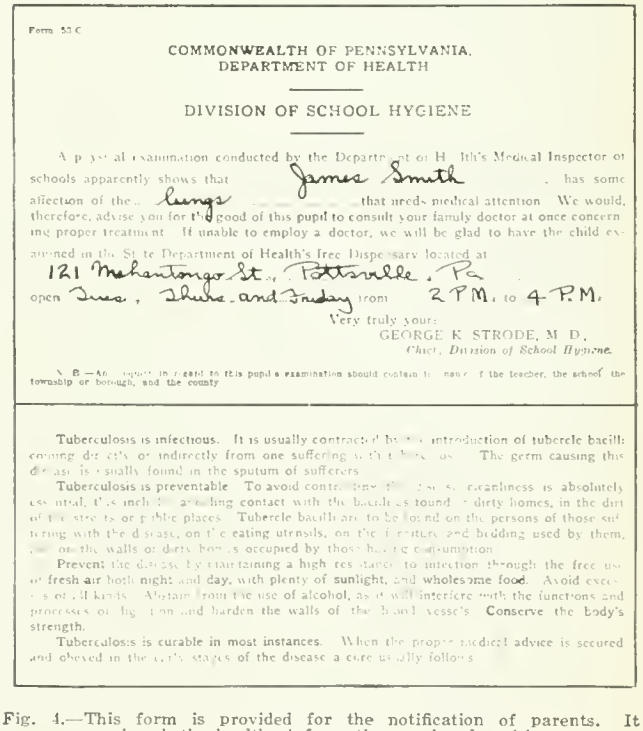
Cost of School Inspection

The funds required for medical inspection in first, second, and third class districts are provided by the school boards. The sum budgeted for health work in the schools, including the item of salary for the medical examiner, is determined by the individual districts according to local conditions. In the first class district examiners receive from $900 to $1,800 for the school year; they work during school hours only. The examiners in second and third class districts are usually part time men and receive compensation amounting to from fifteen to fifty cents per pupil.

The Legislature sets aside annually a fund of $125,000 for the distinct purpose of providing school inspection in the fourth class districts. Though this sum seems large in the aggregate, it is just sufficient to enable us to fix the rate of $6 for each single room school or the first room in a multiple room school, and $4.50 for each additional room in a multiple room school. The average yearly earnings of an inspector are $125. No transportation is provided; the inspector at his own expense may have to travel ten or twelve miles to reach a school; yet, notwithstanding the meager remuneration, hundreds of our inspectors have been willing to do the work year after year; this is a splendid commentary of their interest in preventive medicine and community welfare.

Administration in Fourth Class Districts

Because of the enormous geographical area covered by the fourth class school districts, the problem of administration is most difficult. Nothing is required of the inspector in these districts except to provide each pupil one examination per year and to make a careful sanitary survey of every school plant. The problem of communicable disease control is almost entirely without the province of our inspector, and the follow-up work he is not even called upon to supervise, both of these important problems being cared for by other agencies. The inspector is provided with printed forms, instructions, and a list


Form 53 C

COMMONWEALTH OF PENNSYLVANIA.
DEPARTMENT OF HEALTH

DIVISION OF SCHOOL HYGIENE

A physical examination conducted by the Department of Health's Medical Inspector of schools apparently shows that James Smith has some affection of the... lungs that needs medical attention. We would, therefore, advise you for the good of this pupil to consult your family doctor at once concerning proper treatment. If unable to employ a doctor, we will be glad to have the child examined in the State Department of Health's free Dispensary located at

121 Mahantongo St., Pottsville, Pa.

open Tues., Thurs. and Friday from 2 P.M. to 4 P.M.

Very truly yours,
GEORGE K. STRODE, M. D.,
Chief, Division of School Hygiene.

N. B.—Any report in regard to this pupil's examination should contain the name of the teacher, the school, the township or borough, and the county.

Tuberculosis is infectious. It is usually contracted by the introduction of tubercle bacilli coming directly or indirectly from one suffering with the disease. The germ causing this disease is usually found in the sputum of sufferers.

Tuberculosis is preventable. To avoid contracting the disease, cleanliness is absolutely essential. This includes avoiding contact with the bacilli as found in dirty homes, in the dirt of the streets or public places. Tubercle bacilli are to be found on the persons of those suffering with the disease, on the eating utensils, on the furniture and bedding used by them, and on the walls of dirty homes occupied by those having consumption.

Prevent the disease by maintaining a high resistance to infection through the free use of fresh air both night and day, with plenty of sunlight, and wholesome food. Avoid excesses of all kinds. Abstain from the use of alcohol, as it will interfere with the functions and processes of digestion and harden the walls of the blood vessels. Conserve the body's strength.

Tuberculosis is curable in most instances. When the proper medical advice is secured and obeyed in the early stages of the disease a cure usually follows.

Fig. 4.—This form is provided for the notification of parents. It carries both health information and admonition.

of the school districts he is to examine. His routine duty may be summarized as follows:

Upon arrival at the school house he consults with the teacher, explains what he will do, and proceeds with the work. A short talk of five or ten minutes on some health

theme in accordance with a syllabus previously forwarded by the Department is first given. The inspector then begins to examine the pupils. Form 51, the Medical Inspector's Report, is made use of in recording pertinent data (Fig. 1).

With the exception of vision and hearing, records of defects only are made. Numerals are used to designate defects and the key at the bottom of the form defines the significance of these symbols. An important shortcoming in the method of recording defects which we have used lies in the inability of the central office correctly to interpret each inspector's reports. Serious impairment of breathing to one inspector might be regarded as slight impairment by another inspector. Parents are notified concerning serious impairments, but for slight impair-

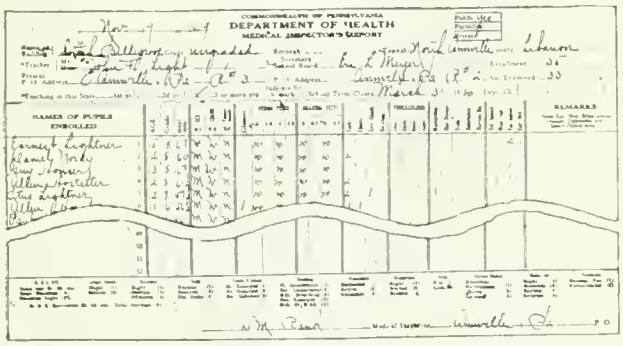

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF HEALTH
MEDICAL INSPECTOR'S REPORT

Fig. 5.—The central office sees to it that the reported defects in children are made the object of follow-up work on the part of the teacher, a system of value in lieu of a school nurse.

ments no notices are forwarded. Both inspectors above referred to might feel that the defect required treatment, yet only the record of serious impairment would result in a notification. In the future, therefore, we will divide all defects into three groups, as follows: (1) Those minor ailments or defects which do not require a recommendation for treatment; (2) remediable defects for which treatment is recommended; and (3) irremediable defects for which treatment is not recommended. Misunderstanding and misinterpretation will thereby be largely overcome and the service materially improved.

The inspector proceeds with his examinations in accordance with the sequence of headings on the examination blank. It has been felt that the child's confidence could more readily be won by first testing vision and hearing, thereafter those examinations requiring more of the child's cooperation being carried out. After all the pupils have been examined, the inspector proceeds with the sanitary survey of the school plant. A follow-up record of each school building in the fourth class districts is kept on file in the central office. The record card used is posted annually and provides space for a ten year period. Such data as window area, floor area, cubic air space, and position of windows are not included on the annual report. These measurements have been made and form part of a permanent record; they were originally submitted by the inspectors on the form shown in Fig. 2. As before mentioned, the inspector is guided in his sanitary survey by a set of minimum standards recorded in the "Manual of School Sanitation." On the blank form used for the sanitary survey of the school plant (Fig. 3) there are nine major topics to engage the inspector's attention,—cleanliness, water, toilets, heating, ventilation, lighting, furniture, safety and first aid. If the requirements are met for any particular item, a check mark is made in the "Yes" column opposite the item; if the requirements have not been met, a check is made in the "No" column and a brief synopsis of defects, with recommendations for correction thereof, is entered in the space provided on the form.

The System of Notification

Upon completion of a school the inspector forwards his reports to the central office, where they are carefully reviewed and errors corrected. From the medical reports notices are written to the parent or guardian of every pupil reported having a remediable defect. A typical notice is shown in Fig. 4. At the same time the parental notifications are written, a report is made to the teacher (Fig. 5) on which are listed the pupils for whom treatment is recommended as well as the part of the body defective. The teacher is required to return this report at the end of the school year with notations as to treatments secured and results attained. The teacher thus becomes a follow-up agent in her own school. The possibilities in such a method are necessarily limited, and yet it recommends itself as the simplest device where no school nurses are available. As a matter of fact, this device has shown us that between 20 and 24 per cent of the pupils reported for treatment have had at least one of their defects corrected. During the past year an attempt has been made to utilize such agencies as the community nurse, Red Cross nurse, and lay committees to do follow-up work in the schools. Several of such agencies are now functioning and it is hoped their work will materially increase the number of corrections.

The defects in the school plant, a list of which is obtained from the Sanitary Survey Form, are reported to the school board and instructions issued to correct the same. The number of corrections by this method, though considerable, is still far from satisfactory, and it seems likely that it will be necessary to use the threat of withholding state appropriations to accomplish our end and provide a reasonably sanitary environment for all the school children.

Results of Medical Inspection

For the purpose of brevity as well as ready comparison the statistics from all school districts in the Common-

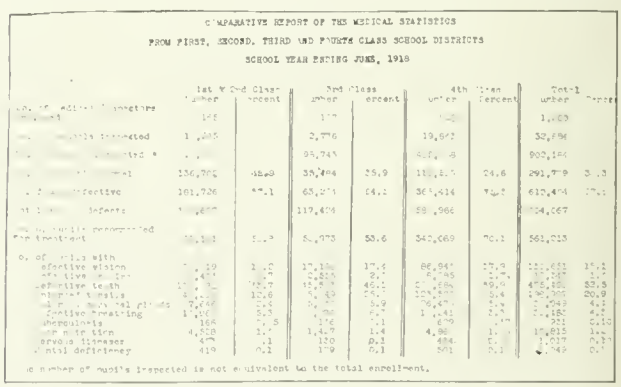

COMPARATIVE REPORT OF THE MEDICAL STATISTICS
FROM FIRST, SECOND, THIRD AND FOURTH CLASS SCHOOL DISTRICTS
SCHOOL YEAR ENDING JUNE, 1918

Fig. 6.—For purposes of comparison the statistics from all school districts are grouped in one chart. The work is standardized and the results can be dealt with as a unit.

wealth have been grouped together in one chart (Fig. 6). The statistics from first and second class districts are combined; there is no marked variation in the type of work done in these districts, and in consequence the statistics can be dealt with as a unit.

The outstanding feature in this chart is the marked excess of physically defective pupils reported in the rural

districts as compared with the urban districts. There are about 18 per cent more defectives in fourth class districts than in the first and second class districts. The questions at once arise, is this a true measure of actual conditions? Does rural life result in the development of such a disproportionate number of physically defective children? Before answering, it will be well to consider certain observations that have a more or less direct bearing on the problem.

(1) The inspectors in the rural districts have more time for careful inspection, with the possible result that more defects may be detected. In the urban districts the inspectors average 1,930 pupils a year, while in the rural districts they average but 520 pupils. On the other hand, it must be kept in mind that the city inspector who is inspecting day in and day out becomes very expert and can actually examine with care more pupils in a unit of time than the part-time rural inspector.

(2) The lack of objective standards which apply in urban and rural districts alike, militate against the accuracy of comparisons. However, when we compare such a defect as that of vision for which we have an objective standard, as supplied in the Snellen chart, a standard that is used in all districts of the Commonwealth, we still find the rural districts report more defects than the urban, as 7.7 per cent more pupils have defective vision in the former districts.

The probable explanation of the disproportionate number of defects found in rural districts is that less effort is made to correct them and prevent their development than is the case in urban districts. The health conscience of people has reached a higher plane in the urban districts; the people more generally appreciate the value of good health and they more generally utilize agencies that tend to produce good health; further, they are fortified against disease and physical impairment in a score of different ways that have not as yet been generally adopted in the country districts.

A comparison of the number of defects which are annually corrected in the first class districts and the fourth class districts throws still further light of the question of relative frequency of defects in urban and rural communities.

Of the 307,295 pupils in fourth class districts recommended for treatment in the year 1917-1918, 63,186, or 20.5 per cent, were reported treated. On the other hand, in a first class district such as Philadelphia, 58,806, or 63.5 per cent, of the 92,615 defective pupils for whom treatment was recommended had received treatment. The marked difference in the percentage is certainly attributed to the uncertainty and meagerness of follow-up work in rural districts as compared with that in our large cities. There is a lack of hospitals, dispensaries, and social agencies concerned with child health in the rural communities and, further, those corrective facilities that may be available are not placed at the disposal of the school child for the correction of his physical defects. All of these factors operate to limit the number of corrections obtained.

With a very considerable yearly reduction in physical defects in the cities and a very small reduction in the rural districts, it is obvious that there will be an accumulation of defects in the latter districts which in the course of years will make it appear as though the rural communities were producing large numbers of physical defects as contrasted with the cities.

The author feels thoroughly convinced that if the same corrective and preventive measures could be applied to the same extent among rural and urban school children there would be, within a few years, decided similarity in the number of defects reported for the two districts.

It would seem that the big factor operating to the disadvantage of the rural communities is that of an accumulation of defectives rather than an excess of production of defectives. Such an accumulation would, of course, include those secondary defects arising from older and more primary defects.

Results of Sanitary Inspection

As before mentioned, a sanitary survey of every school plant is made at least once a year. The results of these surveys show that the rural districts are far from what they should be. The perfect school plants in the country districts are rarities. The following table (Fig. 7) will

DEFECTS CORRECTED THROUGH SANITARY SURVEY OF SCHOOLS

School Year Ending June 30th

School or class rooms inspected	1916 20,077		1918 20,523		Diminution or gain
Air space below requirement	3,382	16.8 %	2,771	13.5 %	3.1 % Dim.
Dark window shades in use	10,980	54.1 %	8,456	41.2 %	12.9 % Dim.
Dry dusting practiced	4,787	23.8 %	2,933	14.2 %	9.4 % Dim.
School buildings inspected	12,558	61.4 %	12,155	59.2 %	2.2 % Dim.
Multiple room buildings	2,560	12.8 %	2,714	13.1 %	.7 % Gain
Single room buildings	10,038	49.4 %	9,431	46.9 %	3.. % Dim.
Unjacketed stoves in use	4,490	... %	3,453	16.8 %	5.3 % Dim.
Ventilating heaters in use	2,705	13.3 %	3,444	16.7 %	3.4 % Gain
Indirect heating systems	809	4.2.%	1,004	4.. %	.02% Gain
No moisture supplied to air	7,..7	37.4 %	6,369	31.0.%	6.4 % Dim.
Windows, only means of ventilation	8,791	42.. %	7,..96	3..0 %	..3 % Dim.
Common drinking cup in use	3,147	15.3 %	1,849	9.0. %	6.3 % Dim.
Common towel in use	9,141	44.3 %	2,989	14.5 %	29. % Dim.
Surface or earth vault privies	...0	36.1 %	8,934	28.4 %	7.7 % Dim.
Modern flush closets in use	672	3.31%	764	3.72 %	.41% Gain

Fig. 7.—The results of inspection work in Pennsylvania as shown by percentages of diminution or gain are set forth in this table, the results in a typical year showing how slow a change is even as regards matters of physical environment.

serve to show some of the defects which have been reported, as well as the degree of success that has attended the remedial measures instituted. The reports from fourth class rural districts for two typical years have been selected for comparison.

It would appear at first sight that far greater improvement should be attained in a matter so comparatively simple as school environment. Experience, however, has taught us that even such a simple problem as unjacketed stoves is moderately complex. School funds are first available for teacher's salary, heat, and books; in many poor districts when these essentials have been procured the treasury is depleted. In other districts plans have been drawn up for new and modern structures and it seems unwise to force an expenditure for the correction of defects which will be of service for but one or two years and which will jeopardize the execution of plans for the new structure. But aside from such districts, there are many which are content to preserve the school houses of their forefathers unaltered, and nothing but the strong arm of the law will arouse them from their self-satisfied state.

LABOR BUREAU COUNCIL

The Fifth Session of the Executive Council of the International Labor Bureau was held October 5 in the Council's permanent quarters at Geneva, Switzerland, the Council consisting of twenty-two government representatives, six representatives of workers, and six of employers.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

A PROGRAM OF CHILD HYGIENE

WHATEVER may be the attitude of the medical profession and of public health workers toward other fields of public health endeavor, the concentration of attention on the problems of child welfare must meet universal approval. No one phase of child life can be isolated and treated as an entity. By the relation of the birth rate to the general mortality the vigor of a nation may be rated; and, likewise, the welfare and survival of those children are a safe index of the social status of a people. The birth rate of native American families has shown a steady and marked decrease. The same change takes place in the birth rate shown by immigrant families after the second or third generation, a change which causes no alarm if at the same time the social circumstances are modified so as to cause a parallel decline in infant mortality.

It has been pointed out that in medico-sociological history of the past fifty years the foremost position must be given to the steady decline of the birth rate in most civilized countries, and to the increased attention devoted to the welfare of infants and their mothers. Attempts at controlling infant mortality need to be on definitely public health lines. To the work of the American Child Hygiene Association must be accredited a highly effectual effort toward the coordination of all national agencies having definitely worked out programs for child welfare. The Report submitted to the Association by their director, Dr. Richard A. Bolt, at their Eleventh Annual Meeting, held in St. Louis, October 11-13, constitutes a valuable document showing the trend of recent months in this field, and the positive contribution of the American Child Hygiene Association toward the scientific investigation of child hygiene problems which makes for satisfactory methods of solution.

During the past year the Association has studied the work of similar organizations, the result of this inquiry being published as "A Digest of Programs of National Organizations Doing Child Welfare." Growing out of this work, and from suggestions received at the medical conference of the League of Red Cross Societies, at Cannes, the need developed for the formation of a national council for the purpose of coordinating child health activities. After a number of conferences with Dr. Livingstone Farrand, of the American Red Cross, Dr. Philip Van Ingen, of the Child Hygiene Association, Dr. L. Emmett Holt, of the National Child Labor Committee, Miss Sally Lucas Jean, and Miss Ella Phillipps Crandall, and Mr. Owen Lovejoy, an organization was finally effected.

Other fruitful channels of activity have been in the work of the Association in outlining the program for the Child Hygiene Section of the American Public Health Association and conferences with other national organizations looking toward closer coordination of work. There has been cooperation with government bureaus, and propaganda and educational work have no doubt reacted favorably in the action taken on the Child and Maternity Bill which will be taken up for action in the coming Congress. Field work is being developed; *Mother and Child*, the new publication, is being expanded. The attendance and personnel of the St. Louis Conference attest the serious purpose of these workers, and the papers presented represent the best thought and scientific procedure, not only in the study and prevention of infant mortality, but also in the development of a broad socio-medical program for the whole of infancy and childhood. The election of Herbert Hoover to the office of president assures the effectual continuation of the program outlined. S. P. M.

COLLEGE OF AMERICAN DENTISTS

To the end that proficiency in the profession may receive new encouragement and that research work may be expanded, the National Dental Association in its recent convention at Boston announced the organization of another society to be known as the College of American Dentists. It will bestow degrees upon men who do meritorious work in dentistry and will encourage postgraduate work. The college will have headquarters in Chicago and will operate through a large board of censors who, unknown to the community, will watch the progress and performances of practising dentists and students and report any specially meritorious work for recommendation for degrees or other action tending to elevate the profession. Its function will not be to teach, but it will afford a stimulus to research.

The officers elected are: John V. Conzett, M.D., of Dubuque, Iowa, president; H. E. Friesell, M.D., of Pittsburgh, Pa., vice-president; Arthur D. Black, M.D., of Chicago, secretary; and C. Kels, M.D., Chicago, treasurer. A board of trustees was elected, consisting of the president, vice-president, secretary, and Roscoe Volland, M.D., of Des Moines, Iowa; Thomas P. Hinman, M.D., of Atlanta, Ga.; H. J. Burkhart, M.D., of Rochester, N. Y.; and Clarence Grieves, M.D., of Baltimore, Md.

PRESENT DAY SOCIAL HYGIENE PROBLEMS*

By LEE ALEXANDER STONE, M.D., Surgeon (R), Regional Consultant, United States Public Health Service, Chicago, Ill.

THERE is such a close interrelation of all health problems that I beg the privilege of prefacing my remarks by a brief statement of the child hygiene activities of the United States Public Health Service, to emphasize the relationship of these activities to the venereal disease control activities of the Service. In briefly outlining this work, I wish it to serve as a means of emphasizing the importance of placing all administration of health matters under one central authority. Not only does this prevent duplication of effort, but it also accomplishes the best results with a minimum of expenditure. Any constituted health official who attempts to concentrate his activities on any particular sex, age, or race group, or on any particular limited geographical area under his jurisdiction without due consideration of related problems will fail most signally in correcting conditions injurious to the groups or districts in which he is particularly interested.

Coordinates With All Health Work

In the state of Missouri the Public Health Service is cooperating with the state Department of Health and a number of volunteer organizations, including the American Red Cross, the Missouri Association for the Control and Relief of Tuberculosis, the Extension Division of the State University, and other agencies, in bringing about better supervision of the health of expectant mothers, infants, children of pre-school and school age, and of children in industry. This work is peculiar in that it has resulted in bringing about a state wide sentiment in favor of placing this work on a self-paying local basis, and is even now resulting in improved birth registration and the provision of increased facilities for the care of mothers, infants, and children.

The great importance of this work as related to venereal disease control is shown particularly by the prenatal care activities. For example, in a recent report of routine Wassermann examinations of 1,840 children it was found that nearly 9 per cent were syphilitic and that in every case, with but one exception, this was of the congenital type, and not acquired. Furthermore, in an examination of fetal and placental tissues in the cases of more than seven hundred miscarriages and abortions which was made in the Johns Hopkins Hospital laboratories, approximately 25 per cent were found to be syphilitic. In addition to the children born dead and those who survive for a longer or shorter period, as in the case of the children just mentioned, an unknown number, which assuredly must be large, die shortly after birth as a result of syphilis. In addition to this must be considered the statistics which relate to blindness as a result of *ophthalmia neonatorum*. It is clear, therefore, that the child hygiene work of the Public Health Service is also venereal disease control work, because, if properly conducted, more and more mothers suffering from syphilis are discovered and put on appropriate treatment, and larger numbers of them suffering from gonorrhea are cured; in just such degree will better and better control of venereal diseases be attained.

Other child hygiene activities of the Service, as they relate to the nutrition and food problems of children, health supervision of children, care of children of preschool age, supervision of the health of children in industry, and the mental hygiene activities as they relate to the child, might be emphasized, but this cannot be done within the limits of time allotted for this discussion. All of this work is educational and corrective and results in improved stamina and resistance to infection, better knowledge of the principles of general and personal hygiene, better supervision of the health of mothers and children, improved facilities for the care and treatment of necessitous cases, detection and training of children exhibiting antisocial tendencies, and improved facilities for the care and training of the feeble-minded children who in later life are such potential sources of venereal disease infection.

At the time of America's entry into the war many unforeseen things presented themselves for settlement. Those in charge of military affairs faced the mobilizing of troops and the problem of handling great numbers of men who were to become part of the large army the United States expected to raise. In the past, soldiers, except when in action, were permitted certain privileges after their day's work was over that in many instances proved disastrous to their moral, physical, and mental well being. They were considered free-lances, and as such came into contact with many things which were demoralizing and vicious as well.

It was believed by many that a soldier could not measure up to the standards expected of him as a fighter unless he caroused, associated with prostitutes, and drank a little too much at times. All one has to do is to recall to mind the actions of the troops during the Spanish-American War, when "license" was the pass-word, and to remember how drunken soldiers took, in some instances, complete charge of segregated districts near their camps. The inmates of these districts combined to turn midnight revelries into orgies of the most awful depravity. Soldiers drank, lost complete control of themselves, threw aside caution, and yielded to lewd and lascivious practices that in sober moments they would have disdained as being beneath them. As a consequence of this license, the usual happened. Venereal diseases, with all of their attendant horrors, flourished.

Many a young man may trace the cause of his present disability to a type of licentious indulgence engaged in by him when he went as a soldier to the Mexican border in 1916. Prostitution flourished in El Paso and other small cities wherever soldiers were stationed. Apparently no attempt was made to stop it, and boys who left homes of purity were forced to witness depravity in its worst phases.

It is stated that when one expedition went into Mexico prostitutes were carried along and that when a permanent camp was finally located, a stockade entirely surrounded with barbed wire was built and stocked with these women. This stockade is said to have been located within seven hundred yards of the commanding general's headquarters. The women were kept for the use of the men of this expedition and a uniform charge of two dollars for the use of their bodies was made.

Very little is known about this pen for females, because

*An address delivered before the National Congress of Mothers and Parent-Teachers Associations, Madison, Wis., June 6, 1920.

of a rigid censorship that forbade any information coming out of Mexico relative to the actions of the Army there.

It seems a pity to be forced to open up out of the past that part of army life which was repugnant to hundreds of commanding officers, yet, because of the custom of turning soldiers loose to do as they pleased, absolutely no surveillance being placed over them after drill periods, officers hesitated or absolutely refused to notice the actions of their men, for fear of being considered meddlers or mollycoddles.

When Congress declared war against Germany, the men upon whose shoulders devolved the putting into action of the orders of the Senate and House of Representatives were puzzled. Were they to adhere to the old ideas so long in vogue or were they to blaze for themselves a new trail that might in all probability bring criticism on them from those who believed in license; should they establish a new order of things that would so conserve the manhood of the proposed army as to send it fit in every particular—morally, mentally, and physically—to win the great battles the leaders knew must be fought before victory could be won?

The latter course was chosen. Men known to have spent their lives in certain professions which had the welfare of the nation at heart were sent for and a great conference was held, with the result that the United States forged ahead of every other nation in Christendom so far as the looking after the physical welfare of her soldiery was concerned.

Cordons were thrown around every cantonment and post where soldiers were being prepared for duty overseas. Men in uniform were not permitted any alcoholic beverages, nor were saloon keepers, hotel proprietors, or even friends, allowed to serve or sell them, under penalty of a fine and imprisonment.

All houses of prostitution were closed in the region of camps, and the military police were instructed to arrest men seen associating with women suspected of belonging to the underworld.

Athletic sports were provided to divert the minds of the men in training. Theaters were built in all of the camps by the War Department. First class talent came to these houses of amusement and put on good shows. The Young Men's Christian Association, Knights of Columbus, and the Young Women's Christian Association provided, in the buildings they constructed, meeting places for the men where they could obtain stationery for their correspondence free, and also where they might witness good moving pictures at least twice weekly. These organizations are deserving of great credit. The Young Women's Christian Association should be mentioned specifically. This organization, composed entirely of women, provided means whereby enlisted men and officers might meet their female relatives, their lady friends, and sweethearts. The work they did made it possible for many a mother to see her boy, and for sweethearts to greet their soldier lovers. Many wives of the men also enjoyed the hospitality of these good women. Too much cannot be said in praise of the magnificent efforts they put forth to aid this country to win the war and of the service of the "Hostess House."

Schools were started wherein the enlisted man might become mentally efficient, thereby eliminating in a large measure idleness after drill periods were over. It was amazing how very little loafing was observable around cantonments that in some instances housed as many as 50,000 men.

All of the above agencies revolutionized antiquated methods of the past and drove to cover those who formerly had preached the doctrine of license. In the face of the elaborate scheme developed, as stated, something was lacking. It was discovered that the men were hopelessly ignorant as to the processes involving reproduction and the dangers attending if their reproductive organs were maltreated and not used as they should be to beget children after their marriage.

It fell to the author's lot to be called upon, along with four or five others, to address large bodies of men in camps on the more intimate things life had in store for them. It was his privilege to address approximately one million soldiers and to give them a type of instruction that should have begun in their babyhood. The ignorance of the men and their officers was in many instances pathetic. Many officers and men came up after the lectures were over to ask questions and also to ask the almost universal question, which was to this effect: "Why didn't my mother or my father explain to me the things I have heard today? If they had I should have been a better man."

One American general, who at one time in his life had been a physician, stated at the beginning of the war, before the entry of the United States, when he was urging "preparedness" from the public platform, that in the future wars must be fought by men clean in body and in mind. He further stated that unless mothers could receive a guarantee that the moral and physical welfare of their boys was to be looked after, they would not be willing to give them to their country. No mother wants to know that, when her son leaves her side to fight for his homeland, he and his associates in all probability will be drawn into the web of sensuality and lasciviousness. This general has always maintained that the existence of prostitutes around military camps is not necessary to the well being of the soldier. He has been ready at all times to defend his position and to protect his men from the pernicious influence of the old school. Camp Funston, where he commanded two divisions and prepared them for overseas duty, boasted of the fact that the young men camped there were safer than if they had been in their homes. Practically every cantonment was a better place for the soldier than his home city.

Mock Modesty the Curse of the Nation

No wiser thing was ever done by any government than that which the United States attempted when it began instructing the young men in its army to respect their bodies and view them as being temples erected in the image of God, and not to be defiled. Four million men were benefited by the instruction they received, and many a boy was saved from errors he would have committed through ignorance. The majority of those who slip into what society calls sin do so because society is to blame in having permitted the iniquity of ignorance to exist, and in having been swayed by the teacher of a doctrine that refused to recognize the sacredness of the procreative act. Mock modesty is the curse of the Nation. Mock modesty is a deadly sin. Mock modesty is a disease that has infected with its prurience and hypocrisy more men and women and mothers and fathers than has any other ailment to be found in the world today. The mock modest person is usually the one who taboos as being nasty anything that pertains to the functions of birth. This same mock modest individual will blush and hide behind a fan or behind the hand at the mention of the natural functions of the body, always, however, making it possible to look over the one and through the other.

It is the proud boast of those who know that, as a result of the things taught in the army to its soldiery,

never before in history has there been such an aggregation of men who were morally and physically so fit to go into battle. It can be said without fear of contradiction that the United States Army was the cleanest army in all the world, and that there never had been such a clean lot of men in uniform before.

Of the four million men under arms in the United States and abroad, there were only 227,000 cases of venereal disease up to February, 1919. Five-sixths of all of the gonorrhea and syphilis in the army was—to the shame of the communities from whence the soldiers came—contracted before the men entered the service and was brought into it by them. Approximately thirty-eight thousand cases were contracted after the troops went into training, and this number is very small indeed when it is considered that in the French army alone, according to Pautrier's estimate, there were 200,000 cases of syphilis. At one time in the Austrian army, according to Hecht, there was the equal of sixty entire divisions out of action because of venereal diseases. The English, Belgian, and Italian armies were infested with these agencies that are rightly called racial poisons.

If it was known, no man belonging to the United States forces was allowed to go to the front line if he was found to be infected. Inspections were held regularly, and any man discovered to be diseased was locked up in a detention hospital and there kept until such time might arrive when he would no longer be a menace to his fellows. A man with venereal disease among the American forces was considered a slacker. His pay was taken from him and he was not allowed to enjoy any of the privileges his comrades were enjoying. He went before a summary court-martial and was sentenced.

Every true American should feel pride surge in his bosom when he considers the actions of the boys who did their bit in the World War. Men, free from the blight of the most terrible of all plagues, faced the Hun, drove him back across No-Man's-Land, and whipped him at every point. When the final crash came, Germany could not stand up against men whose bodies had never been burnt by the fires of venereal disease.

Thousands of the bodies of these men are still somewhere on the fields of France; the souls that once inhabited them have "gone West." The souls of these immortal men, who in the heroic hour proved themselves men in the greatest sense, are crying aloud and asking, now the war is over, that America redeem herself again and throw around her civil population the same protection she threw around her fighting men.

Lighten the Dark Places

There is a crying need for a type of publicity for gonorrhea and syphilis in civil life that will bring them into the light of day. The "hidden menace" in society is venereal disease, and just so long as racial poisons are allowed to remain in Stygian darkness and, like the thief in the night, to dart out and steal that which is most to be desired by man—his health—and then dart back again where they cannot be seen and remain unmolested until ready to strike again, men and women will go down and the welfare of future generations will be jeopardized.

In the United States 770,000 young men reach the age of twenty-one years every year. It is conservatively estimated that of this number 60 per cent, or more than 450,000, will contract either gonorrhea or syphilis, or it may be both, before they reach the age of thirty. Is not a statement of this nature enough to rouse thinking men and women to action? The innoculation of 450,000 young men with the virus of syphilis or gonorrhea means that in all probability an equal number of young women will become infected. All of these young men contemplate marriage, and in the nuptial embrace, unless their treatment has been very thorough, they will almost surely infect their wives. The infecting of the wife, particularly with syphilis, means infected offspring, while gonorrhea may blind the baby as its head emerges from the soft parts of the mother. A guarantee of health must be given the child of the future.

Many claim that a young man should sow a crop of wild oats, "paint the town red," and associate with prostitutes before he marries; that unless he does, he is not rightly entitled to the cognomen man. If the average man who teaches such a doctrine could only reckon the consequences of the sowing of a crop of wild oats, he would hesitate before advising their sowing. The sower should be made to realize that whatever he sows must some day be reaped,—no seed falls to the ground except that a harvest of some kind is reaped from it. The harvest of the crop of wild oats is usually reaped with the flail of pain, agony, and disaster, not alone to the sower but to those to whom he should have brought purity. The wife and her offspring are most usually the ones to reap the full harvest. From 75 per cent to 95 per cent of all diseases in the female pelvis are due to gonorrhea. Thus does the wife reap; blindness in the newborn is in 80 per cent of all cases produced by gonorrhea; the child truly harvests the crop of its father's wild oats that will last it throughout its life; it must go through its existence in darkness, a living rebuke to him who should have gone to his mother free from taint.

Gonorrhea produces an arthritis, commonly called gonorrheal rheumatism, that is very painful. This condition frequently develops into a heart trouble. Thousands of men are sterile because of gonorrhea, and blame their wives for not giving them babies when they themselves can trace the cause to a time when they chose to violate their own chastity because they had been told the age old lie that continence is harmful. Just a word by way of diversion: Continence is possible. It is just as healthful for a man to refrain from sex indulgence until he marries as it is for a woman. Men demand chastity of the women they marry and declare they would not wed those who are unclean morally. They refuse to see how inconsistent they are, but insist that sexual intercourse is necessary to their well being and that unless they indulge, their health will be impaired.

No man should demand more of a woman than he is willing to give in return. His failure to give proves him a weakling and the woman the stronger of the two. Sexual intercourse indulged in by single men is absolutely not necessary to keep up manly vigor. Men have been known to abstain for years from indulging in sexual relationships and still maintain their virility. Continence has been proved healthful by scientists.

(Continued)

Nine of every ten children are born healthy. Twenty years later 20 per cent of them are dead; another 20 per cent are so defective as to be incapable of military service; of the remaining 60 per cent, one-half bear the visible marks of physical defects and two-thirds are so mentally deficient that they earn less than $15 a week. Surely someone is responsible for this postnatal deterioration. . . . Why save the child if a moral docility and physical decrepitude is induced which adds to world misery and shortens life? Should we count our progress by the number of babies saved or by the increased vigor and longevity of adults?—*Patten.*

THE STATE AND FUTURE OF MEDICAL PRACTICE*

By SIR GEORGE NEWMAN, K.C.B., M.D. Edinburgh, F.R.C.P. London

FROM the earliest times the doctor has served the state, but in this country the direct interrelationship is not yet a century old. In 1830 the only direct medical interest of the state, as represented in the Government of the day, was quarantine and vaccination. But in 1831 the Government became anxious about the spread of cholera, then moving towards us from Russia, and an advisory board of health was formed, cholera dispensaries established, and inquiries instituted. One of the results was a measure of defense against cholera, but, far more important, interest was awakened in the insanitary conditions amid which the mass of the people lived—an interest which was confirmed by the inquiries of the Poor-Law Commissioners appointed under the Poor-Law Amendment Act of 1834. No statute before that of 1834 had definitely provided for the state medical treatment of the pauper, though from 1536 the sick poor had been differentiated from the able bodied. The famous Poor-Law of Queen Elizabeth in 1601 had required the "necessary relief" of the disabled pauper, and under that enactment a wide and rather indiscriminate practice of medical treatment had in fact arisen. Thus it came about that between 1834 and 1838 the Poor-Law medical service emerged as the forerunner of the public health service; in 1839 Farr began his work on medical statistics; in 1847 the first medical officer of health was appointed; and in 1855 a central medical department was established in Whitehall—first under the Board of Health (1855-58), then under the Privy Council (1858-71), then under the Local Government Board (1871-1919), and, lastly, under the Ministry of Health (1919). These four historical steps in development from the Poor-Law origin laid the foundation of the present position of state medicine for the civil community—the Poor-Law medical service under 636 Poor-Law unions and upwards of four thousand medical men, the public health service under 1,800 sanitary authorities and 318 local education authorities, with a composite staff of another 3,000 medical officers, the Registrar-General's Department, and the Ministry of Health.

The State and the Doctor

Alongside this entrance of medical men into direct state service there was constantly proceeding a further imposition of statutory duties upon the medical practitioner. Apart from the fact that he may be called upon to undertake official duties in the public service, he is liable under statute in the following respects: (1) He must certify births and deaths (Births and Deaths Registration Act, 1874), and notify all births within thirty-six hours (Notification of Births Acts, 1907-1915); he must notify cases of infectious disease (Infectious Notification Acts, 1889 and 1899, and special notification regulations as issued), of industrial poisoning (Factory and Workshop Act, 1901), and of verminous children (Children Act, 1908). He must also be ready to vaccinate (Vaccination Acts, 1871-1907) and to certify the removal of infectious cases to hospitals (Public Health Act, 1875). (2) He may be called upon to inspect and certify for house disinfection (Public Health Act, 1875, and Infectious Disease Prevention Act, 1890), and be prepared to issue certificates for the removal and burial of dead bodies (Ibid.). (3) He may be required to inspect and condemn in regard to nuisances and insanitary house property (Public Health Act, 1875, or Amendment Act, 1907), or inquire into unhealthy or insanitary areas (Housing of the Working Classes Act, 1890). (4) He must know something of the ill effect upon health of dangerous or offensive trades (Public Health Act, 1875), and of unsound food (Public Health [Unsound Food] Regulations, 1908). (5) He must be competent to diagnose all forms of mental disease (Mental Deficiency Act, 1913). (6) He must be available to respond to the requirements of the local sanitary authority for the provision of medical assistance and treatment for the poorer inhabitants of the district in which he lives (Public Health Act, 1875, s. 133). (7) He is liable for a series of duties in regard to workmen's compensation (Workmen's Compensation Act, 1906, s. 8), superannuation, and pension claims (Ministry of Pensions Act). (8) He may be called in by a midwife in cases of emergency (Midwives Act, 1918, s. 25). (9) The local education authority may avail themselves of his services in connection with the treatment of children and young persons (Education Act, 1918, s. 25).

Lastly, the state has in recent years organized in behalf of the community certain branches of ordinary and special clinical work. The National Insurance Act of 1911 brought twelve million insured persons into medical benefit, at present provided by twelve thousand doctors and ten thousand chemists; systematic provision has been initiated for tuberculosis, venereal disease, and maternity and infant welfare; the organized treatment of early mental disease, ophthalmology, and tropical disease; and the large questions of orthopedics, and the treatment of industrial diseases are now under discussion; and an ever widening field of public dispensaries, clinics, and hospitals has opened before the profession.

Doctor Bears New Relation to State

These are profound changes. They divert, in a handful of years, the whole course of applied medicine from its century old pathway. They do not abolish the private medical practitioner, but they bring him into different relation to the state. Their present and future relation must be confirmed and made good on both sides; for, on the one hand, the profession is conscious of new obligations, both those imposed by law and those imposed by a sense of what is demanded by the civilization in which they live; and, on the other hand, the state is conscious, as never before, of the community's need of the profession, and the value of the profession's help if sought on the right terms and given in the right spirit. The greatest need on both sides is understanding. Value is the result of the application of mind to matter. The new problem is for the state and profession to come to a realization of the principles which should govern their interrelation. It is an association peculiarly difficult. For historical reasons the state—which means for the present purposes all authorities, local as well as central, concerned with health—has seen *prima facie* in the profession a body insistent upon the privacy and individuality of its work, the sanctity of its traditions, the freedom of its engagements. Correlatively the profession has seen in the state an organization apparently devoted to the infringement of these traditions and incapable of

*Reprint authorized by the editor of the Lancet, London. Published in the Lancet under date of July 17, 1920.

putting anything worthy in their place. It has been suspicious and mistrustful of what it considers to be unnecessary intervention. It has feared the imposition of some cast iron system, some form of so-called "nationalization," the institution of a whole time civil service, which in practice make the practitioner of medicine servile, dependent, and fettered.

What can improve this relation? The answer to this question seems to be—a larger measure of understanding by the doctor of the business of central and local government as representing the whole community, and by the state and its officers and representatives, high and low, of the history, development, and genius of professional character. The doctor should know something of the respective functions of Parliament, of the Cabinet, of the Treasury, of the dozen departments dealing with health problems as subordinate to their main functions, of the Ministry of Health (medical and lay), and its Medical Consultative Council. Further, he should know the meaning of the English system of local government; how it has evolved; why the country is subdivided into shires, boroughs, urban and rural districts and parishes, and what the main purposes are of the respective bodies providing for health, pensions Poor-Law, education, and insurance. For it is only by such knowledge, inspired by the historical spirit, that the doctor can obtain a grasp of the machinery by which and through which he can render his communal service to the state. He will discover, incidentally, the working of some of the great principles of representative government and the guarantee of its freedom.[1] The layman, what Anthony Trollope, following ancient custom, called "the clerk," besides specialized knowledge of the law and practice with which he is primarily concerned, should learn as much as he can of professional tradition and sentiment, of the scope and opportunity of voluntary work—from the great hospitals downwards—which touches the profession, of professional organizations, and of their history and relation to each other.

Such knowledge on both sides has a direct bearing on the effective working out of the extended relations between the profession and the state which it is now recognized are inevitable. It would enable doctors to understand those necessary and, at first sight, rather remarkable limitations of government action, which at present he deems to be merely stupidity. For instance, in official work regard must be paid to uniformity, to a "national minimum," to what is practicable rather than what is desirable, to the restrictions of the law, and to public economy. The layman, in his turn, will learn why doctors are jealous of the private practice, of the system of hospital appointments, of the restrictions of whole time work under public authorities, of the whole personal honor, integrity, and etiquette. These matters are not merely expressions of idiosyncrasy, prejudice, or narrowness of mind. They have behind them a long history, sound reason, and something of a philosophy. Some of them may be vestigial remains of a dead past; others have come to us, living, virile, and purposive, across two thousand five hundred years from the days of Hippocrates.

The general effect of this suggested change of outlook would be that the doctor became more political in the true Greek sense, and not with any partisan or meretricious meaning, but rather in the sense in which man was described as a political being, conscious and considerate of the community in which he lives; and Whitehall and the local authorities would realize how far short they are of full understanding of the profession with whom they must work, and of its growing cohesiveness, its quest of truth, and its undying spirit of "love of humanity, associated with love of craft."

Partly by way of illustration of the application of these general principles, and partly by way of demonstration of their necessity, I propose to mention briefly the five outstanding problems which now face the medical profession in its relation to the state. It will be understood that my purpose is to open a discussion and not close one, and that I am speaking wholly in an unofficial capacity.

The Unit of Health Government

The present system of local government in England is like an Egyptian palimpsest, composed in several lays of design laying one upon the other. At the bottom there are the Poor-Law unions; next above them and three times more numerous are the local sanitary authorities; superimposed upon which comes the local education authorities (318); then the Insurance Committees, numbering 145; and at the top the latest addition, the Local War Pensions Committees. Thus the whole country is mapped out five times over, but the charting has been done by different hands, at different times, and for different purposes. Hence arises duplication, overlapping, and confusion. There is confusion in areas and authorities, but there is no less confusion in the family. There are five local authorities concerned with maternity and infancy; three with children of school age; six authorities deal with persons of unsound mind or mental deficiency; four authorities are concerned with "sick persons"; three with the aged poor; and five with the able bodied poor. It is all anomalous, extravagant and redundant, with a result which is ineffective and wasteful.

What we seem to need in the abstract is, first a single unit of health government with necessary subcommittees for particular purposes. The principles which should guide us in devising such local authority are: (1) the concentration, as far as practicable, in one authority in each area, of the responsibility for all administration of health services from local rates, with or without exchequer grant in aid; (2) the absorption of the work of the Poor-Law and insurance in a public health service and the use by that service for the whole community of Poor-Law medical institutions; and (3) the unification in appropriate committees of the local authority of all public medical provision for the sick and infirm of all ages. Clearly, there would be advantage in thus having one authority for all health purposes—for a Poor-Law medical service, sanitation, education, insurance, and pensions—and towards unification of this nature many are looking. But the question is large and complex, and there are many considerations to which regard must be paid in prescribing a unit of sanitary government, including its history, size, population, urbanization, character of its industry and society, intercommunication, rating, relation to local and central government, and so forth. If a large local unit be contemplated, it would be necessary to provide for the encouragement of a consciousness of community of interest and aim in the smaller contributory or constituent divisions, with appropriate delegation of powers or functions in accordance with services to be rendered. The large autonomous body might in that way delegate some of the actual detail work to the more local bodies. If, on the other hand, a small local unit be contemplated, many analogous questions would arise.

1. I may perhaps venture to commend a perusal of Lawrence Lowell's Government of England (2 vols.) or the little volume on The English Constitution by Walter Bagehot (in Nelson's Series), and the three admirable pamphlets on The Business of Government Ministry of Reconstruction, H.M.S.O., No. 38, 2d.)

All I desire to do here is to name the general principle of unification as one to which attention must be given.

There is a second, somewhat similar, common-sense requirement—namely, *uniformity of administration*—in all comparable areas. All through the country and in all departments of state medicine there is need for introduction of accepted standards and a larger measure of equalization and uniformity of central and local action. There remains a third principle which the profession must not allow itself to forget—namely, that the local unit of health government must be *representative* of the will of the people as a whole. It cannot be wholly medical in personnel or in purpose. It must be comprehensive and disinterested. "Our trade our politics" is never sound statecraft.

Now, in devising this reform the medical profession must, in the interest of the state not less than the profession, take their share, exchanging with the layman their views on many points—the nature of the authority, its membership, the question of coöption of experts, finance, medical participation, the respective functioning of the different local committees, the use and adaptation of existing institutions, and their economical arrangement, and the place and character of the domiciliary medical services.

Extension of Medical Provision

Here again is a pressing problem calling partly for unification and simplification and partly for systematic organization. At present there are inadequacy, unequal provision, and piecemeal effort. We shall never get an ordered scheme in that way. We need a national policy—a program, so to speak—dealing seriatim with the medical problems of maternity, infancy, children, adolescence, adult life, and old age; with environment of home and workshop; with the prevention and cure of non-infectious diseases as well as infectious; and with the education of the public in hygiene. Here to deal with infancy, and there to neglect it; here to have a "stunt" in venereal disease, and there to provide nothing; here to organize a public medical service, and there to leave all things to chance—is not the way either of science or common sense. Then we require, in much greater degree, to bring together in proper relation the provision of medical treatment in the home, at the clinic, in the hospital, and in the convalescent institution, not for the pauper class only, but for the whole of society.

All this means that the profession should help in the consideration of these matters, for, while they constitute only a section of the community of ratepayers, and therefore have only a share in the decision, their knowledge and experience, and the fact that they must in large degree undertake the actual working of any scheme, entitles them to a voice in the form of the scheme. For what sections of the populace should provision be made? For what forms of treatment? Under what principles as to availability, adequacy, and payment? What is to be the part of lot of the private practitioner in the undertaking. And, lastly, what does the medical profession say to the concurrent operation of three incomplete and independent public medical services (Poor-Law, Insurance, and Public Health), and is it possible to unify their divergent claims. And, if so, what should be the basis of payment and its relative burden on the state, on the local authority, and on the income of the patient?

Future of the Hospital System

A third example of problems awaiting us is that of hospital position. The number of hospitals in England and Wales in 1915 was reported to be as follows:

	No.	Beds
General hospitals	594	31,329
Special hospitals	222	13,654
Fever hospitals	755	31,149
Smallpox hospitals	363	7,972
Poor-Law infirmaries	700	94,000

This gives us approximately two thousand six hundred hospitals with 178,000 beds, of which 700 institutions and 94,000 beds belong to the Poor-Law. In regard to this Poor-Law accommodation three things must be said here: (1) It is provided out of the poor rate and for persons in receipt of poor relief. (2) Of the 636 Poor-Law unions only fifty-four possess separate infirmaries (of which twenty-six are in metropolitan unions); 331 unions have "sick" beds in the curtilage of the workhouse, and the remaining 251 unions have no special in-patient accommodation. (3) A large proportion, perhaps even one-third, of the in-patient accommodation in all Poor-Law institutions are empty. These points are important when considering the practicability of transfer of Poor-Law beds to the general community. No doubt from the medical point of view, the community stands in urgent need of more hospital accommodation—we have overcrowded hospitals and long waiting lists on the one hand, and on the other inability to build new hospitals, and yet many empty Poor-Law beds. But the solution is not as simple as it looks, and the situation is complicated by many other hospital problems too often overlooked. Let me name some of them.

Is the principle of voluntary financial support to continue in our hospital system, or is the profession in favor of Government aid and some measure of Government control. Ought the hospital accommodation of the community to be allocated by the state in respect of area or type of clinical work undertaken, or ought it to continue to be provided in haphazard fashion? Is the medical and surgical staff to remain honorary? Is it to be a special professional class, or composed in part, at least, of general practitioners? What is to be the relation of hospitals to each other and to contributory clinics, and to the insurance system? How are we to bring about the substantial reform of the out-patient departments which is so greatly needed? Ought we to make provision for paying patients; and, if so, on what basis? Can we fairly provide for the insured and the pauper while neglecting to provide for the remaining majority? And, lastly, what can be done to reorganize after-care and the proper convalescent treatment of the patient? These are some typical issues which arise, and they are but illustrations. For their right answers they require medical as well as lay judgment and experience.

Medical Education Inadequate

A fourth subject, and perhaps the most important of all, is an adequate method of medical education which shall equip the undergraduate and the practitioner. The new services of the doctor to the state call for a reconsideration of the whole business or education and equipment. A different kind of doctor is needed in these new times. It is clear he must have no less of the learning and skill of former days, whilst he must also be furnished with an improved training in new subjects, in preventive medicine, and in the political science of communal responsibility. We are all convinced that the pivot of the profession is the general practitioner. If he is properly equipped the future is safe. Some specialization of practice there must be, for no man, be his powers what they may, can be master of all branches of medicine. Never-

theless, it is incumbent upon us to recognize that such diseases as tuberculosis and venereal and heart disease will never come under control until and unless the general practitioner is in a position to deal with them. Much of the special provision which has been made by the state in recent years has been necessary, first, because of the need for institutional accommodation to effect cure, and, secondly, because adequate treatment by the private practitioner was unavailable.

In my view, the state should never take out of the hands of the general practitioner, whether in contractual practice or otherwise, the patient whom he is willing and competent to handle on reasonable terms. The difficulty has been that the practitioner has not been in a position to render the medical service required by the state. It is evident that the solution is dependent partly upon reform in the medical schools—a reform which, happily, is proceeding rapidly—and partly upon adequate arrangements for graduate education for the practitioner, and, may I add, willingness on his part to avail himself of the facilities which are provided. There is much remaining to be done in both directions, but before substantial progress can be achieved there is first considerable apathy to be overcome and a fuller apprehension of the needs of the situation; and, secondly, the further education of the practitioner must include an adequate professoriate, hospital, and laboratory accommodation, and proper organization.

The Advancement of Humanism

As this section is concerned with "medical sociology," I venture to suggest one other sphere in which the medical man of this new age may put in his oar. It is not only an intellectual or medical advance of which our country stands in need. Closely akin to it there is a social need. Men are great in proportion as they absorb the best life of the world in which they live—its ideas, knowledge, hope, fears, aspiration—and quicken these anew in the minds of other men. As Sophocles said:

> Much is there passing strange,
> Nothing surpassing mankind.

No medical man who is in a right sense a man of the world can have failed to ponder often on the near relationship which obtains between the practice of medicine and the social life of the people. It has often been said our patients are not "cases" but men, women, and children, each with a separate personality, environment, heredity, and variation, with individual habits, training, temperament, and psychology. We cannot be wise healers of the patient of the community without a large sympathy and a liberal humanism—that fuller humanity with which the Oxford reformers inspired the Renaissance.

We are the witnesses of a strange and rapid transition in the life of the people as a whole, an enlarging franchise and new social complexes. Higher wages, shorter hours of work, increased leisure, high prices, and democratic aspirations are not remote from the national health and well being. The doctor must be the missionary of hygiene—the chief educator of the people in ways of health. In being that, he cannot escape his share of responsibility in the study and handling of many of the medicosociological questions which surround us—education, sobriety, cleanness of living, the prevalence of venereal disease, prostitution, the penal laws, the causes of certain crimes, the integrity of family life—all such questions concern us, and to fulfill our vows we must be concerned with them. The cultivation of international science, cooperation, and amity should also, I think, be added. It is essential that we should remember that whilst these issues belong to the warp and woof of medical polity, the decisive factor is not medical, and movements in favor of their determination on medical grounds only are doomed to failure. Let me remind you of a famous passage in Huxley's lecture at Oxford in 1893 on "Evolution and Ethics." He had been speaking of the cosmic process of Nature and he said:

> Social progress means a checking of the cosmic process at every step and the substitution for it of another, which may be called the ethical process, the end of which is not the survival of those who may happen to be fittest in respect of the whole of the conditions which exist, but of those who are ethically the best. The practice of that which is ethically best involves a course of conduct which in all respects is opposed to that which leads to success in the cosmic struggle for existence. In place of ruthless self-assertion it demands self-restraint; in place of thrusting aside or treading down all competitors it requires that the individual shall not merely respect but shall help his fellows; its influence is directed not so much to the survival of the fittest as to the fitting of as many as possible to survive. It repudiates the gladitorial theory of existence. It demands that each man who enters into the enjoyment of the advantages of a polity shall be mindful of his debt to those who have laboriously constructed it; and shall take heed that no act of his weakens the fabric in which he has been permitted to live.

These words are even more timely today than they were when they were spoken. He added: "Most men are agreed that the proportion of good and evil in life may be very sensibly affected by human action. . . . So far as we possess a power of bettering things it is our paramount duty to use it and to train all our intellect and energy to this supreme service of our kind."

The claims of the state on the profession have greatly increased owing to the advance in medicine and its manifold applications. A new and closer relationship between them is inevitable. It can be profitable in the public interest only by good understanding. There is something due from each to the other. The profession is responsible for its own contribution—a contribution which consists partly in a correct diagnosis of its own disabilities and the conflicting and prejudicial tendencies within its own body, partly in a fuller understanding of the needs of the state, and partly in readiness to make itself thoroughly well equipped and competent to render the remarkable public service which in this generation has fallen to its lot.

ABUSE OF DISPENSARIES

Last year, forty-six hospitals in New York City, not maintained by the city, reported that they provided 600,000 persons with free treatment, for a total of 1,203,728 treatments, for which neither the beneficiary nor the city paid. It has been estimated that during the year 1919 four million free treatments were given in the dispensaries of New York.

In view of Section 296, Chapter 55, of the Consolidated Laws, which says, "Any person who obtains medical or surgical treatment on false representation from any dispensary licensed under the provisions of this Act, shall be guilty of a misdemeanor, and on conviction thereof, etc.," the question is asked whether the giving of false home address by such persons is not a misdemeanor under the section. Recently a case of smallpox was found in a well known dispensary and, when those who had been exposed had been followed up at the addresses given as their homes, about two thirds could not be found.

The tragedy of all great cities is the tragedy of the child-life of the slums.—Robert W. Mackenna in "The Adventure of Life."

A STUDY OF DISPENSARY PATIENTS*

A Report by the Public Health Committee of the New York Academy of Medicine

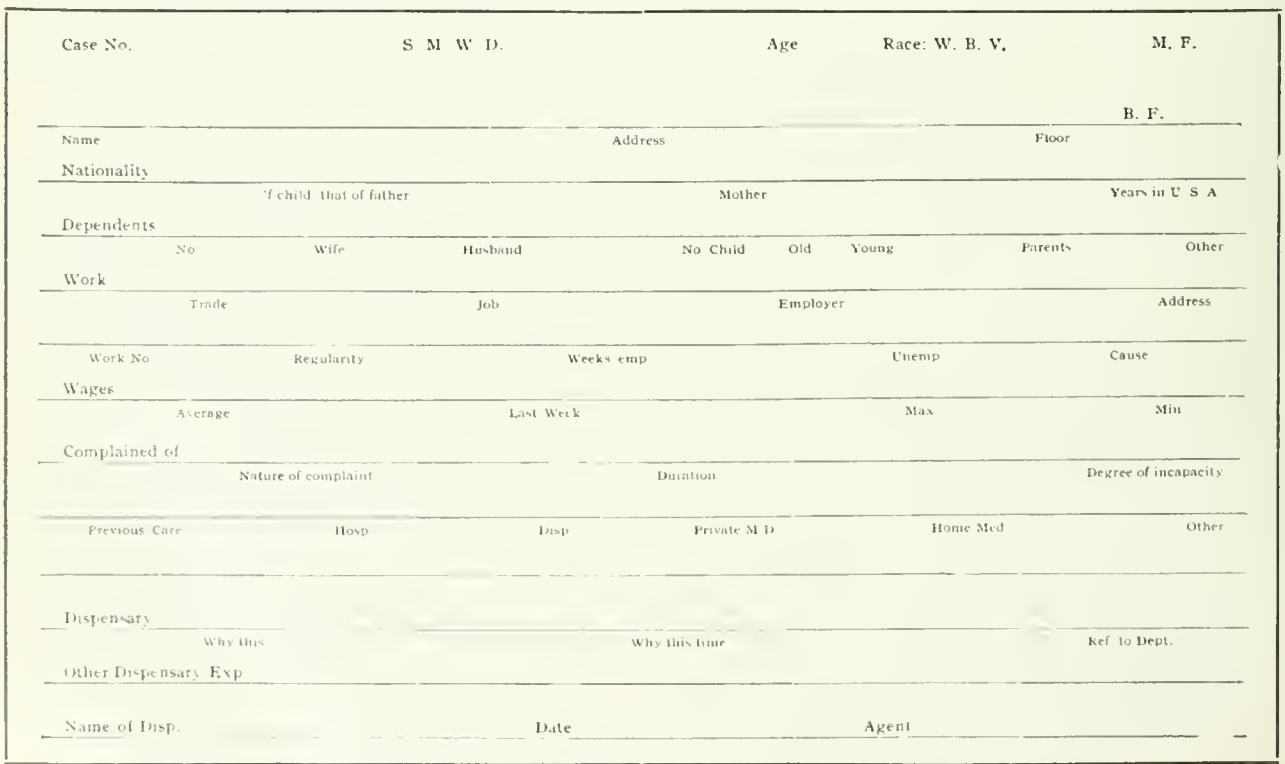
WITH a view of obtaining more accurately than was feasible in the community survey the information about the types of patients using the dispensaries, their economic and social conditions, and the motives prompting them to resort to ambulatory treatment, 1,968 persons were interviewed at the dispensaries as they passed the registrar's desk or while they were sitting in the waiting rooms. These dispensary patients were interviewed at thirty-seven institutions. Agents of the committee spent from two to three days in each institution. Patients were selected at random from among these who had long waiting periods, so as not to interfere with the routine of the dispensary work. In this way, from forty to sixty patients were interviewed at each dispensary. At two institutions, the Babies' Hospital Dispensary and Lebanon Hospital Dispensary, it was not necessary to follow this procedure, because the registrars of these institutions obtain a great deal of this information as a routine procedure. Although their information did not cover all the points called for in our study, it seemed more desirable to utilize the available data than to submit the patients to a new inquiry along similar lines. Among those interrogated there were 454 men, 876 women, and 638 children under the age of 16. In most of the children's cases it was either the mother or the father who was questioned, and the information gained pertained to the family and not to the child alone. One-third of the patients were visited in their homes for the purpose of observing their home conditions and of checking as far as possible the statements given at the dispensary, as well as to ascertain the extent to which false addresses were given. The questions asked were those usually found on the "representation card," except that it was elaborated considerably in certain respects to obtain a clearer idea of the social and racial status of the patients and, also, of their ability to pay a private physician. On the form shown in Chart I was recorded the information gained. This will indicate the nature of the data which form the basis of this report.

*The fifth of a series of articles on dispensary service prepared for the pages of MODERN MEDICINE.

Age, Sex and Nationality

Of the total number of 1,968 patients, 24 per cent were American born; 12 per cent Italian; 31 per cent Hebrew; 8.5 per cent Irish; 4.5 per cent Slav; 5.7 per cent German; 5.8 per cent Negro; and 8.5 per cent miscellaneous, under which heading were grouped those belonging to various national or racial groups not previously indicated.

Of the total number of 1,968 patients, 40 per cent were between the ages of 16 and 36; 27.5 per cent were over 36; and 32.5 per cent were children under 16. Of the 454 men, a little over 50 per cent were among the age group under 36. Among the 876 women, 63 per cent were under 36, and 37 per cent were over 36. The age distribution of the patients by nationalities given below shows that the largest number of children cases were among the Italians, Hebrews, Irish, and Slavs, and the lowest among the native born. The variations between the various nationalities are not very pronounced in this respect. The largest percentage among young women was among the negro group. It was fairly high in the native-born group, and lowest among the Irish. Among the women over 36, the highest proportions were among Irish, Germans, and Hebrews. The least proportion of young men was found among the Irish and Germans, and the least proportions of men over 36 were in the miscellaneous group, the Slavs and the negroes, and the highest among the Irish and the Germans (Table I).


Case No. S M W D. Age Race: W. B. V. M. F.

B. F.

Name Address Floor

Nationality

If child that of father Mother Years in U S A

Dependents

No Wife Husband No Child Old Young Parents Other

Work

Trade Job Employer Address

Work No Regularity Weeks emp Unemp Cause

Wages

Average Last Week Max Min

Complained of

Nature of complaint Duration Degree of incapacity

Previous Care Hosp Disp Private M D Home Med Other

Dispensary

Why this Why this time Ref to Dept.

Other Dispensary Exp

Name of Disp. Date Agent

Table I- DISPENSARY PATIENTS TABULATED BY SEX AGE AND NATIONALITY

Nationality	Men 16 to 36		Men 36 plus		Women 16 to 36		Women 36 plus		Children under 16		Total	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
U. S. A.	69	14.4	49	10.2	178	37.2	69	14.4	114	23.8	479	24.
Italian	33	14.3	33	14.3	48	20.7	26	10.7	92	40.	231	12.
Hebrew	66	10.6	65	10.6	146	23.9	110	18.	226	36.8	611	31.
Irish	9	5.6	27	16.5	30	18.	42	26.	57	34.	166	8.5
Slav	12	13.7	8	9.2	26	28.6	13	16.	29	33.6	87	4.5
German	7	6.2	16	14.1	22	19.1	29	25.4	40	35.2	114	5.7
Negro	14	12.	11	9.4	49	41.9	11	9.4	32	27.3	117	6.8
Miscellaneous	26	15.	11	7.	53	32.	26	16.	49	30.	164	8.6
TOTAL	234	12.	260	11.	561	28.	326	16.6	638	32.6	1968	100.

An analysis of the proportions of men, women, and children among the several groups shows that the distribution of men was pretty nearly equal among the several races except that it was a little higher among the Italians and native born than in other groups. The proportions of women differ more than those of the men, being 51.3 per cent among the negro patients, 51.8 per cent among the native born, and only 31.4 per cent among the Italians.

Occupation and Financial Status

Of the 1,330 adult patients, 18.5 per cent were male family bread winners; 31.9 per cent were gainfully employed, but had no dependents; 47.6 per cent were housewives and mothers; and 2 per cent were dependent adults.

For 629 of the 1,330 adult patients we were able to obtain the occupation in which they were engaged. The distribution of the several trades is presented in Table II and, according to the classification, 11.8 per cent of the gainfully employed patients were in clerical work, 21.8 per cent in personal or domestic service, 6.3 per cent in the building trades, 13 per cent in the clothing trades, 9.4 per cent in transportation—including drivers and chauffeurs—4.6 per cent in sales work, 2.1 per cent in metal work, 13.5 per cent manufacturings of various kinds, 4.8 per cent were firemen or electricians or machinists, 5.2 per cent unskilled laborers, 2.2 per cent engaged in printing and bookbinding, 1.6 per cent were food handlers, 0.8 per cent were municipal employees, and 2.9 per cent were in a large number of miscellaneous occupations. The last group includes telephone operators, photographers, teachers, theatrical workers, soldiers and sailors, and one dentist (Table II).

Figuring the *per capita* weekly incomes as we did in the community survey described in another section of this report, we found (Table III) that 13.1 per cent of the families had an income of less than $4.50 *per capita* per week; 22.9 per cent had an income from $4.51 to $6.50; 19.6 per cent an income from $6.51 to $8.50; 11.2 per cent an income from $8.51 to $10.50. The remaining 255 families, or 12.9 per cent of the total from whom this information was obtained, had a larger income than $10.50 *per capita* per week. On the basis of budgetary studies made by the Bureau of Statistics of the Federal Department of Labor and of computations made by the Charity Organization Society of New York, an income of $8.50 *per capita* per week would provide the minimum

Table II. OCCUPATIONS OF 629 WAGE EARNERS TABULATED BY NATIONALITY

Nationality	Clerical Work		Personal or Domestic Service		Building Trades Plastering		Clothing		Transportation including Chauffeurs		Sales Work		Metal Work		Manufacturing		Firemen, Electricians, Machinists, Tool Setters		Laborers		Printing Bookbinding		Food Handlers		Municipal Employees		Miscellaneous		Total	
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
U.S.A.	33	21.4	25	16.3	14	7.8	9	5.1	22	12.5	9	5.1	3	1.7	17	9.6	11	6.2	5	2.7	0	0.4	4	1.1	4	2.2	9	5.1	179	28.3
Italian	1	1.4	8	11.4	5	7.2	15	21.4	8	11.4	2	2.9	1	1.4	13	18.6	4	5.7	8	11.4	1	1.4	3	4.4			4	2.4	70	11.1
Hebrew	23	13.6	12	7.1	15	8.8	45	27.3	7	4.1	11	6.5	5	2.9	36	21.3	3	1.8	3	1.8	3	1.8					8	4.9	170	26.9
Irish	2	3.6	25	45.6			2	3.6	9	16.4	2	3.6			1	1.8	5	9.1	7	12.7	1	1.8	1	1.8			1	.5	55	8.8
Slav			7	26.9			2	7.7	4	15.4	2	7.7	2	7.7	5	19.3	2	7.7	2	7.7							1	3.8	26	4.1
German	3	15.2	15	45.6	2	6.	1	3.	1	3.	1	3.					2	6.	3	9.1			3	9.1					33	5.2
Negro	3	6.7	23	51.2	2	4.4	3	6.7	4	8.9	1	2.2			4	8.9			2	4.4	2	4.4					1	2.2	45	7.2
Miscellaneous	2	3.8	18	34.	2	3.8	4	7.5	4	7.5	1	1.9	2	3.8	9	17.	2	3.8	4	7.5	1	1.9	1	1.9	1	1.9	1	1.9	53	8.4
Total	74	11.8	137	21.8	40	6.3	82	13.2	59	9.4	29	4.6	13	2.1	85	13.5	31	4.8	33	5.2	11	1.6	13	2.0	5	.8	18	2.9	629	100.

NOTES --(1) 2 Photographers--1 telephone operator--1 teacher--1 theatrical--1 navy
(2) Street Band
(3) 2 Teachers--1 dentist--3 navy
(4) Photographer
(5) Army
(6) Navy

Table III-ECONOMIC GROUPS OF PATIENTS APPLYING TO THE DISPENSARY FOR TREATMENT TABULATED BY NATIONALITY

Nationality	Number of Patients	Less than $4.50		$4.61 to $6.50		$6.61 to $8.50		$8.61 to $10.50		$10.61 to $15.50		$15.61 to $20.50		$20.61 and over		No Information	
		No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
U. S. A.	479	47	9.8	95	19.8	91	19.	61	12.7	58	12.1	15	3.1	8	1.6	104	21.7
Italian	231	57	24.4	69	30.	36	15.5	13	6.	11	5.	7	3.	4	1.5	34	14.7
Hebrew	611	76	12.5	156	25.6	118	19.	67	11.	37	6.	10	1.7	7	1.2	140	23.
Irish	165	24	14.6	36	21.8	33	19.8	20	12.3	17	10.4	5	3.	4	2.4	26	15.7
Slav	87	8	9.2	19	21.7	20	23.	11	12.7	5	5.8	4	4.6	2	2.5	18	20.7
German	114	12	10.5	25	22.	25	22.	11	10.	14	12.	4	3.5	1	.8	22	19.2
Negro	117	15	12.8	25	21.5	23	19.7	19	16.2	15	12.8	1	.8	1	.8	18	15.4
Miscellaneous	164	19	11.5	27	16.5	40	24.4	20	12.3	14	8.5	4	2.5	7	4.3	33	20.
TOTAL	1968	258	13.1	452	22.9	386	19.6	222	11.2	171	8.7	50	2.5	34	1.7	395	20.

of living standard described in the study of Chapin for a family of man, woman, and three children. The indispensable income in 1907, when the Chapin study was made, was $900 a year in New York, and now it is $1,550. According to these family budget standards, the major portion of the dispensary patients included in the present study were below the line of the minimum normal standard of living. It must be remembered that the figures ascertained represent the income of the family if disease had not caused a considerable degree of unemployment directly or indirectly.

Excluding children, we found that 43 per cent were unemployed at the time when they were interviewed. Table IV gives the distribution of unemployment among

Table IV.—WORKING-TIME LOST THROUGH ILLNESS TABULATED BY TYPE OF INCAPACITY

Degree of Incapacity	Number Giving Information	Patients Working		Patients Not Working		Time Out of Work: 7 days or less		8 days to 1 mo.		1 mo. to 3 mo.		3 mo. to 1 yr.		Not Determined	
		No.	Per.	No.	Per.	No.	Per.	No.	Per.	No.	Per.	No.	Per.	No.	Per.
Partial	314	298	58.	236	42.	66	31.5	56	24.	66		33	14.		
Intermittent	121	28	48.	63	52.	9	7.9	15	23.8	20	31.8	13	20.5		
Complete	142			142	100.	27	19.	24	16.9	44	31.	35	24.6	12	8.5
No Incapacity	351	276	78.6	75	21.4									75	100.
TOTAL	1128	632	56.	496	44.	100	20.2	91	18.3	129	26.	89	18.	87	17.5

Note: This excludes 551 children and 289 others for whom this information was not obtained. These patients comprise 40 free babies and 50 from Lebanon Hospitals, at which institutions records were copied, and the patients from the clinics of the Manhattan Maternity, Lying-In, Sloane and Women's Hospitals, the majority of whom applied for prenatal or pediatric care.

the adult patients by nationality and by the extent of their disability.

Of those who were unemployed, 20.2 per cent had been unemployed for less than eight days at the time they were interviewed in the clinic; 18.3 per cent had been unemployed between eight days and a month; 26 per cent had been unemployed between one month and six months; and 18 per cent had been unemployed for more than six months. The largest relative amount of unemployment was, of course, among those who had been completely incapacitated, none of whom had been working. Of those who suffered intermittent disability, that is, those who had some chronic malady which incapacitated them from time to time, 52 per cent were out of work; 42 per cent of those who had partial incapacity were not working, and 21.4 per cent of those who suffered no incapacity were out of work. This large amount of unemployment, due to illness either directly or indirectly, rendered the financial status of most of the families rather precarious. This was borne out by the observations and inquiries made at the homes of 632 of the patients who were visited in their homes. Of these 632, only 545, or 86 per cent, were found to be living at the address given. The others evidently gave false addresses. In view of the fact that care was taken to obtain the address as accurately as possible, and also in view of the fact that the patients were visited a short time after the interview at the dispensary and therefore could not have moved from the places given as their abode, it may safely be assumed that 13 per cent of them gave wrong addresses, either deliberately or because of ignorance. Incidentally, it may be of interest to state that among the derelicts in this respect, the Hebrews were most numerous, 19.8 per cent of them not being found at the address given to the agent. They were followed by the Slavs, 16.6 per cent, and the Negroes, 14.2 per cent. The smallest amount of misinformation was found among the Italians and the Irish.

Of the 545 patients visited, 95.4 per cent were, in the judgment of the investigators, truthful with regard to the statement of their economic and family conditions. The Negroes were found to be the least truthful; in only 83.3 per cent of their cases was the story confirmed. The Slavs were just a bit better, and the remaining groups were about on the same level.

Dispensary Abuse

On the basis of the observations made and the data obtained, a classification was made of the patients with regard to whether or not they were justified in using the dispensary. This is, of course, a difficult task and does not lend itself to any precise ascertainment. As far as possible, the same standards were applied to all of the families and, as a result of the test, 79.4 per cent of the patients were fully justified in their use of the dispensary; 9.1 per cent were doubtful; 8.8 per cent were justified in applying for the services of specialists, as they had no means of obtaining them otherwise; and 12 cases in all, or a little over 2 per cent of the total number, were found to be taking undue advantage of the dispensary. Of those 12 patients, 4 were Negroes, 5 Hebrews, and 3 native born. Of the 50 patients classified in the doubtful group, 16 were native born, 3 Italians, 14 Hebrews, 5 Irish, 2 Slavs, 3 Germans, 3 Negroes and 4 miscellaneous (Table V).

Table V.—ABUSE OF DISPENSARIES

Nationality	Patients Justified in Using Dispensary		Patients Justified in Using Dispensary but Applying for Specialist's Service		Total	Doubtful				Total Doubtful		Not Found at Address Given		Total	
	No.	Per.	No.	Per.		No.	Per.	No.	Per.	No.	Per.	No.	Per.	No.	Per.
U. S. A.	196	94.7	7	4.8	133	101	78.9	3	2.3	16	12	4	3.0	136	100.
Italian	82	98.8	1	1.	83	80	96.			3	3.6			83	100.
Hebrew	188	90.9	4	2.	196	163	77.4	9	4.3	24	11.4	14	6.7	210	100.
Irish	48	96.	2	4.	50	41	82.			5	10.	4	8.	50	100.
Slav	29	93.	2	6.	31	26	81.			4	12.	2	6.2	32	100.
German	63	96.1	1	2.6	64	56	87.			4	11.4	3	4.6	70	100.
Negro	98	93.3	7	10.4	82	76	83.3	8	8.6	8	9.1			84	100.
Miscellaneous	49	100.			49	39	82.4			6	8.7	3	5.	48	100.
TOTAL	865	95.4	29	3.2	845	679	79.4	25	2.9	70	9.1	68	8.8	766	100.

These findings concerning dispensary abuse correspond in a large degree to the results of similar studies made at various times in this and other cities.

In a careful investigation made in 1915 among one thousand patients of the Presbyterian Hospital of Philadelphia, it was found "that in twenty cases out of the one thousand it was felt that the acceptance of the free care offered by the hospital amounted to abuse. In fifteen other cases the absence of definite information or the presence of suspicious circumstances left the question open to doubt. Thus in only thirty-five cases of the thousand, or 3.5 per cent, was 'abuse' judged to be present or probable."[1] In the judgment of the investigators the Philadelphia study demonstrated "with striking force how utterly impossible it would be for the vast majority of those patronizing the dispensary to pay for the kind of treatment and facilities it affords."

Confirmed by Other Studies

In a study of dispensaries conducted by the Illinois State Health Insurance Commission it was found that 4.5 per cent of the patients were recipients of medical charity which their economic status did not justify. In this connection the report states that "it is well to bear in mind that the type of medical service needed is important in determining whether or not a patient is worthy of dispensary treatment. One may be well able to pay a general practitioner for treatment of a minor ailment or one of short duration, but unable to pay for a specialist's services, if needed, or for treatment continuing through a long period."[2]

In 1912 a committee of the Medical Society of the

1. Jobes, R., and Hostetter, F.: A Social Survey of Dispensary Patients in Philadelphia, Mod. Hosp., November, 1915, p. 321.

County of New York made a study of one thousand cases selected from thirteen dispensaries of this city and found that 90 per cent of the patients seemed to be worthy of free treatment and that approximately 10 per cent seemed able to pay for medical treatment under ordinary circumstances, "but the margin over and above fixed expenditures seems in most cases so slight that in illness demanding continued treatment or the services of a specialist, to pay a physician would mean for them serious deprivation or the incurring of debt from which afterwards it would be difficult to escape. In fact, in almost every one of these cases there seems to be a reasonable doubt as to how the case should be regarded. Many people said they were ready and willing to pay a small fee, but their experience had proved the danger and unwisdom of putting themselves in the hands of a doctor of whose skill they were not sure. Many go to the only place they know where they are reasonably sure of correct diagnosis and scientific treatment." [3]

Studies made in other cities yielded similar results. A financial investigation of the resources of 1,881 families in the Boston Dispensary,[4] covering a period of several years, showed that "not over 2 per cent of the applicants at this institution could have paid for the medical care they needed at private rates." Dr. B. S. Veeder, after a study of the patients at the Washington University Dispensary at St. Louis, came to the same conclusion. He believes that in view of the relatively small amount of imposition by the patients, which is less than the average percentage of bad debts incurred in private practice, it would be uneconomical on the part of the institutions to make financial investigations of patients as a routine procedure. This is also the view of most of the dispensary administrators with whom the subject was discussed while the present study has been in preparation.

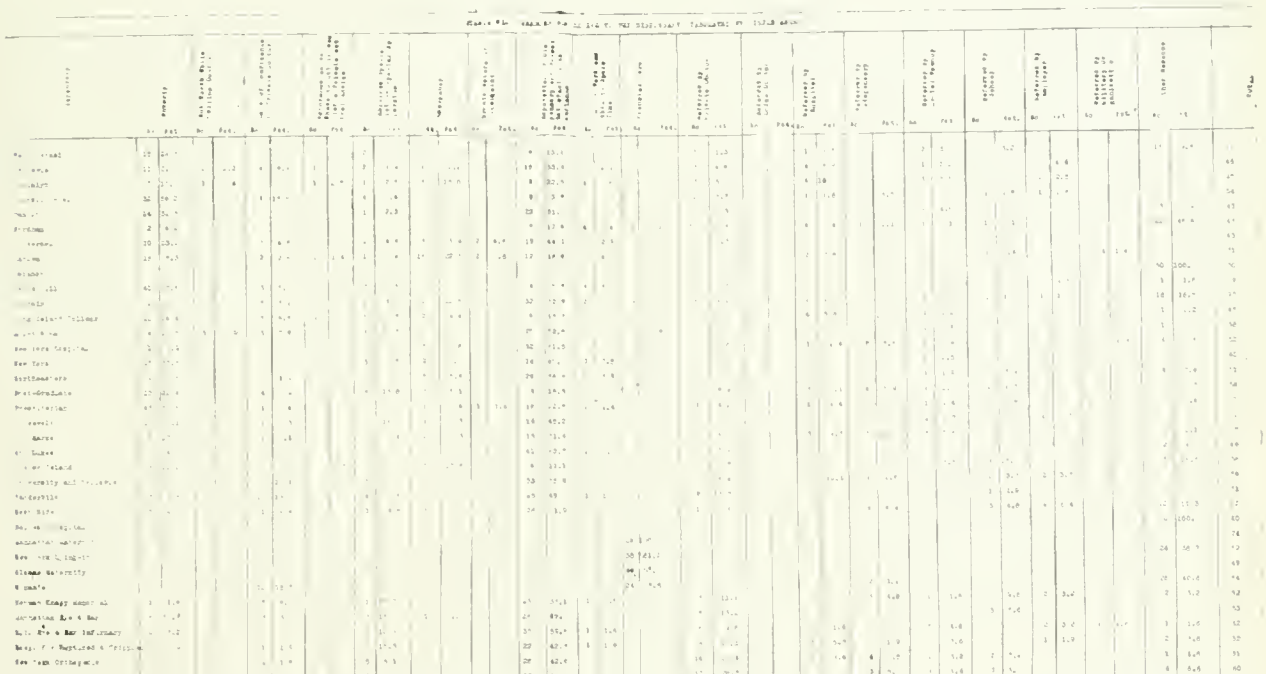
2. Report of Health Insurance Commission of the State of Illinois, 1919, pp. 93 and 355.
3. New York State Jour. Med., 1913, xiii, 50.
4. Davis, Michael M., Jr., and Warner, Andrew R.: Dispensaries, Their Management and Development. The Macmillan Company, 1918, p. 48.

Reasons for Applying to Dispensary

A great variety of reasons for applying to the dispensary was given by the patients, the causes varying with the type of institutions at which inquiries were made and with several racial groups constituting the dispensary clientèle. It is difficult to classify the reasons into clear cut categories, as they frequently overlap and more than one reason is given in certain instances. A few, however, can be carefully defined: such are, for instance, poverty, ignorance as to where to obtain reliable private medical advice, the reputation of the dispensary, or former satisfactory experience. In Table VI the various reasons have been classified and are given by the institutions at which the patients were interviewed. Of the patients interviewed, 15.1 per cent stated that they had no money for private physicians or were unable to continue the services of a private physician. At Cornell, 59.2 per cent of the patients claimed poverty as the reason for coming to the dispensary.

At Lenox Hill as high as 67.8 per cent gave this reason, and at the Presbyterian 60.5 per cent. The lowest proportions of claims of poverty as a cause of recourse to the dispensary were found at all the special hospitals and at the Lincoln Hospital Dispensary in the Bronx, the New York Hospital Dispensary, St. Luke's Hospital Dispensary, the University and Bellevue Clinic, the Vanderbilt Clinic, and the West Side Dispensary on Forty-second Street. It was to be expected that the special hospitals would show a smaller percentage of those claiming poverty than would the general clinics, because of the higher cost of obtaining services of specialists and the difficulty of meeting this problem even among the middle class. The small percentage of poverty claimed at St. Luke's was probably due to the fact that it is situated in the section of the city where there is on an average a less amount of poverty than in the sections east of Third Avenue, whence the majority of the Presbyterian and Lenox Hill Dispensary patients come.

(Continued)



BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

AUTOEROTIC PHENOMENA IN ADOLESCENCE. An Analytical Study of the Psychology and Psychopathology of Onanism. By K. Menzies, with a foreword by Dr. Ernest Jones.[1]

The author presents the various views held by authorities regarding the psychology and pathology of masturbation. The author himself is of the opinion that autoerotismi is a rather normal phenomenon during adolescence and is not harmful unless carried to excess. The author advises psychoanalysis in the treatment of excessive autoerotism. In fact, all through the book the author refers constantly to psychoanalysis as the great advance in medicine during the last few years.

One may differ from some of the author's views; it must be admitted, however, that the booklet serves a purpose, namely the review of authoritative literature on an important and much disputed subject.

BRIGHTNESS AND DULLNESS IN CHILDREN. By Herbert Woodrow, Ph. D., associate professor of psychology in the University of Minnesota.[2]

The author considers brightness and dullness in children as due to inborn traits, although he recognizes the influence of social status on the mind.

The author speaks very highly of the Binet Simon test, and tries hard to smooth out all difficulties encountered in the attempt to make it a universal test. All through the book one notices the influence of Binet Simon's work and the influence of Galton's work on the author.

Of great interest is the practical application he gives to the newer knowledge of the psychology of children.

THE FUNDAMENTALS OF HUMAN ANATOMY, Including Its Borderland Districts. From the Viewpoint of a Practitioner. By Marsh Pitzman, A. B., M. D., professor of anatomy in the dental department of Washington University, St. Louis.[3]

The author of this book has attempted to make anatomy easier for the medical and dental student, and has succeeded in no small degree. He explains the meaning of the Latin and Greek terms, gives short and clean cut descriptions of the body structures, and shows the application of many anatomic facts to the practice of medicine.

ÉTUDE CRITIQUE DE L'ÉTIOLOGIE DES BRONCHITES CHRONIQUES AVEC SCLEROSE PULMONAIRE. Par le Dr. Jacques Dalsace.[4]

This study, based on eighteen cases and a review of the literature, is an attempt to explain some instances of chronic bronchitis on a syphilitic basis. The author has evidently made a conscientious effort to prove the tuberculous nature of the lesions, but in the absence of acid fast organisms in the sputum, or in inoculated guinea pigs, has concluded that, inasmuch as a majority of the patients had positive Wassermann reactions—degree or antigen not mentioned—there was presumptive evidence of a pulmonary infection of luetic origin. On several patients with negative Wassermann reactions, syphilis was surmised following several miscarriages.

The author concludes that a diagnosis of syphilis of the lung must be made chiefly on negative evidence of other pulmonary infections, together with an apical sclerosis, large hilus shadows, sputum not containing tubercle bacilli or many organisms of other types, a negative result from guinea pig inoculations, and, preferably, a positive Wassermann. His several autopsies have been undeciding factors, due, he claims, to the difficulty of demonstrating the Treponema pallida in histologic lung sections.

Although some of the patients entered the hospital for relief from dyspnea of an asthmatic type, no mention is made of efforts to ascertain the possible anaphylactic nature of the trouble.

A DICTIONARY OF TREATMENT, Including Medical and Surgical Therapeutics. By Sir William Whitla, M. A., M. D., LL. D., M. P., late professor of materia medica and therapeutics in Queen's University, Belfast, etc.[5]

This handy volume is of proper size to be kept on the physician's desk for handy reference. Its popularity is attested by the fact that thirty-two thousand copies have been printed. While brief and to the point, it is remarkable how many items are included and practically all forms of approved treatment are at least mentioned. It is quite up to date. While not exhaustive enough to serve as a textbook, it is admirably adapted to refresh one's memory.

CARE AND FEEDING OF INFANTS AND CHILDREN. A Textbook for Trained Nurses. By Walter Reeve Ramsey, M. D., associate professor of diseases of children, University of Minnesota; Including Suggestions on Nursing by Margaret B. Lettice, supervising nurse of the Baby Welfare Association, St. Paul, Minn. Second edition.[6]

While primarily a textbook for nurses, this is the type of book which should be in the hands of every mother and expectant mother. It is well written and the numerous illustrations are very helpful. Considerable attention is devoted to public health nursing, both prenatal and postnatal in a special chapter on "Child Welfare." The anatomy and physiology of the infant are treated briefly. The general care, hygiene, and feeding of infants are thoroughly covered. In addition, there are chapters on the abnormalities and diseases of infancy and early childhood.

1. Paul B. Hoeber, New York, 1920.
2. J. B. Lippincott Company, Philadelphia, 1919.
3. C. V. Mosby Company, St. Louis, 1920.
4. Librarie Felix Alcan, Paris, 1920.
5. Chicago Medical Book Company, Chicago, 1920.
6. J. B. Lippincott Co., Philadelphia, 1920.

You've Been Waiting for Such a Book

PUBLIC HEALTH and HYGIENE

By Eminent Authorities

Edited by WILLIAM HALLOCK PARK, M.D.

PROFESSOR OF BACTERIOLOGY AND HYGIENE, UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE; DIRECTOR OF THE BUREAU OF LABORATORIES, DEPARTMENT OF HEALTH, NEW YORK CITY

Octavo, 884 pages with 123 illustrations. Cloth $10.00 net

A remarkable advance has taken place, in the past few years, in the appreciation of the people and of their officials in regard to the value of public health. This growing opinion that public health is to a large extent purchasable by effort and money, has stimulated health authorities to develop their opportunities and to assume greater responsibilities. The best medical colleges no longer confine their teaching almost wholly to subjects dealing with the diagnosis and treatment of disease, but give thorough courses in hygiene, and its practical application in preventive medicine. The technological schools are providing similar courses to students thinking of entering the field of public health work.

The great advances in our knowledge concerning hygiene and the increasing scope of public health work have led to the creation of many subdivisions and the problems and practices connected with these have become so highly technical as to require public health workers to restrict their activities to special lines. The medical officer for some time has appreciated this. Wherever the community is large enough to afford it, he has obtained the service of specialists to administer and develop the different departments. The department of health of any progressive State or large city has under the administrative head a number of bureaus, each of these under some specialist who has demonstrated his fitness.

The time has passed when any one person can possess the technical knowledge and personal experience required properly to direct and develop all or even several of these different branches of public health work. It is also true that few if any persons can discuss authoritatively more than one or two of these subjects. The report of the American Public Health Association on the control of communicable diseases was consulted in writing the chapter on that subject.

The writers of this book, holding the above opinions, believed that there was need of a volume in which the most important phases of hygiene in relation to public health would be presented in a practical way by specialists actually devoting themselves to the subjects treated by them. The writers have kept in mind that the book is intended for public health officials, physicians and medical students, and each has therefore tried to make his section as practical as possible and to utilize to the full his own personal experience.

CONTENTS

Relation of Microorganisms to Disease
WILLIAM H. PARK, M.D.

Antimicrobal or Antiprotein Substances Individually Considered
WILLIAM H. PARK, M.D., AND CHARLES KRUMWIEDE, M.D. Assistant Director of the Bureau of Laboratories; Associate Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, New York City.

Prevention of Individual Infectious Diseases
WILLIAM H. PARK, M.D.

Practical Use of Disinfectants
WILLIAM H. PARK, M.D.

Epidemiology
GEORGE A. SOPER, PH.D. Major, Sanitary Corps, U. S. A.

Sanitary Surveys
W. L. DODD. Assistant Director of the Department of Sanitation of the Pease Laboratories, New York City; sometime Sanitarian-in-Charge of the Metropolitan Life Insurance Co., New Orleans Sanitary Survey.

Air and Health—Ventilation
C.-E. A. WINSLOW, DR., P.H. Professor of Public Health, Yale School of Medicine; Curator of Public Health, American Museum of Natural History, New York.

Housing
LAWRENCE VEILLER. Secretary of the National Housing Association, New York City.

Food
EDWARD K. DUNHAM, M.D. Lieut.-Colonel, Medical Corps, U. S. A.

Vitamines
ALFRED F. HESS, M.D. Clinical Professor of Pediatrics, New York University and Bellevue Hospital Medical College, New York City.

The Preservation and Adulteration of Food
J. P. ATKINSON, M.S. Chief Chemist, Department of Health; formerly Research Chemist to the Bureau of Laboratories, City of New York.

Bacterial and Other Contaminations of Milk. Their Relation to Public Health
WILLIAM H. PARK, M.D.

Bacterial Infections and Parasitic Diseases from Milk, Meat and Other Foods
WILLIAM H. PARK, M.D.

The Soil
ARTHUR R. GUERARO, M.D. Lecturer on Social Hygiene, New York State Department of Health, New York City.

Water Supplies and Their Purification
JAMES T-B. BOWLES, B.S. Lecturer in Water Supply and Sewage Disposal, New York University, Department of Hygiene, Bellevue Hospital Medical College; in charge of Water Supplies and Purification Plants, Canal Zone, Panama; Sanitary Expert with Expeditionary Forces; Vera Cruz, Mexico; Formerly Lieut.-Col., Sanitary Corps, U. S. Army.

Sewage and Waste Disposal
JAMES T-B. BOWLES, B.S.

Housing and Plumbing
ARTHUR R. GUERARO, M.D.

The Sanitation of Swimming Pools
WALLACE A. MANHEIMER, PH.D. Chairman of the Department of Physical Training, Evander Child's High School; Vice-President of the International Congress on Public Baths, Belgium, 1920.

Personal Hygiene
EUGENE LYMAN FISK, M.D. Medical Director of the Life Extension Institute, New York.

Additional Practical Points in Personal Hygiene
ARTHUR R. GUERARD, M.D.

Military Hygiene
C. W. BERRY, M.D. Lecturer on Military Hygiene, New York University and Bellevue Hospital Medical College; Lecturer on Preventive Medicine, Long Island Medical College, and the Post-Graduate School, New York City; Brigadier-General, New York National Guard; Adjutant-General of the State of New York.

Rural Public Health Work
FRANK OVERTON, M.D., P.H., Sc.C. Sanitary Supervisor, New York State Department of Health.

Tropical Hygiene
M. E. CONNOR, M.D. Health Officer, Panama Canal, 1904-1914; Superintendent of the Medical Department, United Fruit Co., Tela, Honduras, 1914-1916; Senior State Director, International Health Board.

Industrial Hygiene
LOUIS I. HARRIS, M.D. Director of Bureau of Preventable Diseases, City of New York; Special Lecturer, Department of Bacteriology and Hygiene, New York University and Bellevue Hospital Medical College; Medical Advisor to the Labor Sanitation Conference, Greater New York.

Child Hygiene
S. JOSEPHINE BAKER, M.D., D.P.H. Director of Bureau of Child Hygiene, Department of Health, New York City; Lecturer on Child Hygiene at Teachers' College, Columbia University and New York University and Bellevue Hospital Medical College; Consultant in Child Hygiene, U. S. Public Health Service; Former President of the American Child Hygiene Association.

Sociologic and Economic Aspects of Disease
CHARLES F. BOLDUAN, M.D. Lecturer on Preventive Medicine and Hygiene, College of Physicians and Surgeons (Columbia University), New York; Chief of the Section of Public Health Education, U. S. Public Health Service, Washington, D. C.

Public Health Education
CHARLES F. BOLDUAN, M.D.

Mental Hygiene
AUGUST HOCH, M.D. Late Director, Psychiatric Institute, Manhattan State Hospital for the Insane; late Chief Psychopathologist, Cornell Dispensary, New York.

Mental Defectives. Preventing and Controlling Measures
HENRY H. GODDARD, PH.D. Director of Bureau of Juvenile Research, Columbus, Ohio; formerly Director of the Psychological Laboratory, Vineland Training School, Vineland, N. J.

Maritime Quarantine
LELAND E. COFER, M.D. Surgeon, U. S. Public Health Service; Health Officer of the Port of New York; Member of the Board of Health, N. Y.

Vital Statistics
WILLIAM H. GUILFOY, M.D., Registrar of Records, Department of Health, New York, and SHIRLEY W. WYNNE, M.D. Chief of Division of Statistical Research Department of Health, New York; Member of the Advisory Committee on Statistics, New York Tuberculosis Association.

SEND FOR IT NOW.

(M. M.)

700-10 Sansom St. **LEA & FEBIGER** **Philadelphia**

Send me Park's Public Health and Hygiene for enclosed $10.00.

Name ..... Address .....

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.

OTHO F. BALL M.D., President.
R S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.
H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE
1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO.
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRIPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,
22-24 East Ontario Street,
Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

BOOKS OF THE MONTH

(Continued from Page 774)

MILITARY OPHTHALMIC SURGERY. By Allen Greenwood, M. D., Lieut.-Colonel, Medical Corps, U. S. A.; Including Chapters on Trachoma, Other Contagious Conjunctival Diseases, and Gas Conjunctivitis, by G. E. DeSchweinitz, M. D.; and a Chapter on Ocular Malingering, by Walter R. Parker, M. D.[7]

This handbook was compiled with the idea of presenting in condensed form suggestions helpful to medical officers who had to deal with the special ophthalmic problems which arose in the daily routine of active army medical work. Colonel Greenwood, than whom, by reason of his long service in the British and American military ophthalmic service, no one is better qualified, discusses clearly and succinctly the principle features of military ophthalmic surgery. Colonel DeSchweinitz contributes a splendidly written chapter on "Trachoma and Common Forms of Conjunctivitis." Colonel Parker gives concise directions for the examination and detection of malingerers.

The book served a most useful purpose during the war, and even today is well worthy of perusal.

OXFORD MEDICINE, Volume I. The Fundamental Sciences and General Topics. By Various Authors. Edited by Henry A. Christian, A. M., M. D., hersey professor of the theory and practice of physics, Harvard University, physician-in-chief to the Peter Bent Brigham Hospital, Boston, Mass., and Sir James Mackenzie, M. D., F. R. C. P., LL. D., F. R. S., consulting physician to the London Hospital and director of the Clinical Institute, St. Andrews, Scotland. In five volumes.[8]

When the original announcements were made by the Oxford Press concerning the publication of the Oxford Medicine, they made one's intellectual mouth water in the expectation of the good news to come. Now that the first volume is before us it is fair to ask the question whether the actual response is equal to the anticipated one. This volume on general medicine and the fundamental sciences contains articles, amongst which are Christian, Mackenzie, Hewlett, Billings, Slike, McCollum, Osler, Davenport, Cabot, and Rowntree. This array of names in itself speaks for the type of material presented.

It is, of course, impossible to review in detail such a volume and it would cause invidious comparisons to pick on any single contribution. However, the philosophical discussions of Christian and Mackenzie offer much food for thought.

One wonders whether it is a fair criticism to make, but some of the articles seem too monographic in type. Perhaps interest would be better held if a little more condensation were possible, althongh how to accomplish this it is difficult to see.

Speaking generally, it is safe to say that if the rest of the volumes live up to the standard of the first the Oxford Medicine will become a classical system.

CUNNINGHAM'S MANUAL OF PRACTICAL ANATOMY. Revised and edited by Arthur Robinson, professor of anatomy in the University of Edinburgh.[9]

Ever since we used the first edition of Cunningham at medical school, it has remained the standard dissecting manual. It is as staple as Webster's Dictionary. The make-up has been improved in this edition. Numerous new cuts and skiagrams have been added and the text revised. It now appears in three volumes. The international (B. N. A.) terminology is used.

7. Lea & Febiger, Philadelphia, 1918.
8. Oxford University Press, New York, 1920.
9. William Wood & Co., New York, 1920.

A Big Story In a Small Nutshell

THE beginning point of many under-oxydation disorders lies in the improper cooking of food, and in the use of lard, animal fats, and ordinary cooking compounds, used in the preparation of food. These fats, because of their low burning point, "decompose" by the action of heat into products other than fatty acids and glycerine.

The acrolein produced by burning is not only intensely irritating to the intestinal mucosa, but also prevents the normal secretion of digestive juices—thereby hampering digestive and metabolic processes, and preventing the proper isomeric transformation of the proteid molecule.

There is one way in which much of this can be prevented. This is by advising your patients to use Mazola in all their cooking and baking. Mazola has a higher burning point than other cooking fats or oils. It can be heated to 650° Fahrenheit, or more, before burning! Whereas, butter, lard, goose grease and cooking compounds burn at much lower temperatures.

Food properly cooked in Mazola is seared over by the heat—not soaked full of indigestible fats. Natural odors and flavors are retained. Food is rendered more digestible. The nutrition of your patient is enhanced.

Mazola is equally valuable as a salad oil, and as an easily assimilated fat—rich in lecithin and in phosphorous compounds—helpful in all wasting diseases, and to assist in conserving the integrity of the protein structure of the body.

Order your patients to use Mazola, Doctor, and note the immediate improvement that follows.

CORN PRODUCTS REFINING CO.
17 Battery Place New York City

MAZOLA IS SOLD BY ALL GROCERS EVERYWHERE

Science Guards Its Purity

In our condenseries we employ every precaution known to science to insure the purity of Carnation Milk.

Due to this fact its quality has always been of the highest standard.

Carnation Milk is pure cows' milk, evaporated and sterilized. Only water is removed in this process.

All the natural food value is retained, nothing is added, not even sugar.

Physicians and nurses can safely administer Carnation Milk to their patients, knowing it to be scientifically pure and wholesome.

CARNATION MILK PRODUCTS COMPANY
1134 Consumers Building, Chicago
1134 Stuart Building, Seattle

Carnation Milk

"From Contented Cows"

Sold by Grocers Everywhere

The label is red and white

A NEW PROBLEM IN EDUCATION

The proper care of the children from two to five whose mothers are forced to leave home to work has been provided in London by volunteer nursing schools in connection with the public elementary schools, thus creating a new problem for educational committees. "The child is not a miniature adult," says the English journal, *Maternity and Child Welfare*. "Food, space, air, freedom to see and hear and touch and handle—these things come first. The nursery school should not be a forcing ground."

THE PUBLIC HEALTH NURSE

The September issue of the *Public Health Nurse* contains a very comprehensive review of the developments of the work of the United States Public Health Service. An interesting account is given of the development of the Bureau of Public Health Nursing in Ohio, by Hulda A. Cron, state supervising nurse, and John A. Smith, M.D., secretary of the New York State Department of Health, Albany, analyzes the several state programs of public health nursing.

AMERICAN JOURNAL OF NURSING

The editorial comment of the October issue of the *American Journal of Nursing* concerns itself chiefly with retrospect, as this issue marks the end of the first twenty years of the journal's existence. The several issues of outstanding importance now before the Society are mentioned and a summary of the entire situation and the measures which the *Journal* has advocated and whose success it has largely brought about are interestingly recounted by Miss Mary M. Riddle, treasurer of the General Board of Directors.

STATE NURSING ACTIVITIES

A summary is made by John A. Smith, M.D., secretary of the State Department of Health, Albany, N. Y., of the various state programs of public health nursing, which appears in the September issue of the *Public Health Nurse*. It is useless, he says, for various state departments to plan programs of public health protection until some means of providing an adequate number of full time health officers and thoroughly trained public health nurses are found. He briefly outlines the essentials of a fairly adequate state program.

New York has made a comprehensive recent study of her problems and has been very progressive in the activities undertaken. Twenty-eight states have adopted a statewide public health nursing program. In nine states the activities of the nursing buerau are combined with those of child hygiene. State supervision of public health nursing is provided in ten states. The county health unit plan of distributing the various states for nursing service has been adopted by fourteen states. In Washington the state law permits county commissioners to employ county tuberculosis visiting nurses and these nurses also do general public health work. Seven states have adopted the plan of distributing the state into health districts for a statewide public health nursing service. One state, Connecticut, has adopted the "town unit plan."

In commenting upon the organization of the work of public health nursing, Doctor Smith regards as essential the adoption of some such plan as that submitted to the National Organization for Public Health Nurses for providing a national public health nurse registry. Through such a registry health authorities would find it possible to secure qualified public health nurses.

The Production of Simmons Beds

begins on the Common sense Principle that a Bed is Made to Sleep in

SOUND, restful, health-building sleep is essential to the harmonious functioning of mind, nerves and muscles.

A bed may be ever so beautiful in design and finish but if it fails to *invite* sleep with its comfort and restfulness, nobody wants to give it "houseroom."

Sound sleep cannot be had in a bed that rattles or squeaks with every turn of its occupant. That is why it is so important to know about and discover faults of this character *before* a new bed is finally purchased.

Simmons Beds are Built for Sleep.

By this, it may be properly emphasized, they are so designed and constructed as to insure the greatest degree of comfort. Each and every part is made to fit snug and tight. The result is that, when the complete assembly of head, foot and siderails is made, there is no sagging or twisting out of alignment. A noiseless, supremely comfortable bed as well as an artistic, harmoniously finished piece of bedroom furniture is what buyers of Simmons Beds get.

Any Simmons Bed you select can be depended upon for strength, comfort and service. The designs vary; there is an almost unlimited array of styles, colors and finishes to choose from—but the basic construction is always the same, always sanitary, correctly proportioned and luxuriously comfortable.

Physicians, Public Health Officials, Nurses and Welfare Workers everywhere, men and women who know and appreciate the importance of sound, restful sleep, are enthusiastic about the superior sleep qualities of Simmons Beds; and there is a design and finish to harmonize with the furnishings of any home.

The Booklet "Yours for a Perfect Night's Rest," illustrating and describing Simmons Beds for modern homes, will be mailed upon request.

SIMMONS COMPANY

Executive Offices - Kenosha, Wisconsin.

CHICAGO DISPLAY ROOMS 1347 S MICHIGAN AVENUE
SAN FRANCISCO DISPLAY ROOMS 1055 MARKET STREET
NEW YORK DISPLAY ROOMS 6 E THIRTY NINTH STREET

SERVICE STATIONS IN ALL PRINCIPAL CITIES

The Right Flavor

It is the flavor that makes nourishing foods and drinks palatable. And it is important that they be palatable in order to promote digestion and assimilation.

Physicians and dietitians who recognize this fact insist on the use of only the best flavors. Many of them recommend

SAUER'S
THE NATIONAL EXTRACT
VANILLA AND 32 OTHER FLAVORS

They are made from the choicest materials obtainable in a modern and sanitary plant where every care is taken in their manufacture.

Sauer's Extracts have won seventeen highest awards and medals at American and European Expositions for purity, strength and fine flavor.

The C. F. Sauer Company

Richmond, Virginia

RED CROSS TOUR OF INSPECTION

Miss Clara D. Noyes, director of the American Red Cross, recently sailed for Europe to undertake an extended tour of inspection of the Red Cross activities in Europe.

HELPS DETROIT CRIPPLED CHILDREN

A million dollars to finance a free hospital for crippled children was set aside in the will of the late George H. Cummings, former president of the Detroit Rack Company, executors of the estate recently announced. Mr. Cummings was once a country school teacher.

FINDS HOME FOR SICK NURSES

Nurses who are ill as a result of their service in the war have been provided at The Evergreens, a beautiful twelve acre country estate overlooking Great Shore Bay along the shore of Long Island, N. Y., a place where army, navy, and Red Cross nurses may be cared for during convalescence after illness incurred during the war.

CARE OF THE GROWING CHILD

Supplementing the recent propaganda on the care of the baby, the United States Public Health Service has inaugurated a campaign of education for the promotion of child health. A large number of special articles have been prepared and distributed to more than one hundred newspapers for publication in serial form. This series will appear under the title of "The Growing Child" and deals with a wide variety of subjects pertaining to the health of the child.

WOMEN AND GIRLS FIRST

Red Cross instruction in Home Hygiene and Care of the Sick, which was given to 92,000 women and girls during the last fiscal year, will not for the present be stimulated to include boys and men.

Many requests for the establishment of classes have come from brothers, fathers, and husbands, to whom the influenza epidemic brought vital realization of their inability to care for stricken members of their families. Owing to the lack of qualified nurse instructors, Red Cross National Headquarters has reached the decision that the expansion of this course to include this group would not for the present be advisable. Exceptions to this rule are being made, however, in the case of missionaries, who have found the knowledge of household hygiene and elementary nursing procedure of inestimable value in their work.

PUBLIC HEALTH NURSING IN ITALY

The three courses in public health nursing established by the American Red Cross Tuberculosis Association in Italy are meeting with marked success, according to the *American Journal of Nursing*. The first course was in Rome. A new course is being opened this month in Milan, and the ten months course offered in Genoa closed in October. The graduates from all three courses are in such demand that there are constantly more positions than candidates.

Some Italian students will be brought to America within the next year to see how our public health nursing is done. The scholarships permitting them to do this have been secured through Dr. William Charles White of Pittsburgh, the director of the American Red Cross Tuberculosis Commission in Italy.

Foods entirely free from Starch and Sugar can easily be made from Listers Prepared-Casein Diabetic Flour
We do not furnish the cooked foods

DIABETIC BREAD Cookies Muffins Pastry

warranted palatable non-carbohydrate foods are easily made in any home from

LISTERS PREPARED-CASEIN DIABETIC FLOUR

Absolutely Starchless

YOUR diabetic patient can enjoy a much more varied, satisfying and healthful menu by the introduction of the many delicious, strictly non-carbohydrate foods that can be made from Listers Diabetic flour.

NOT A GLUTEN FLOUR

—but a blend of special caseins, made by our own exclusive process. Absolutely starch-free, sugar-free and purin-free. Easily digested—about 95% is assimilated and 90% goes into energy.

SELF-RISING. Packed in small, carefully weighed boxes—each containing the correct protein-content, per day, for the average patient—and accompanied by carefully tested recipes for making the various foods.

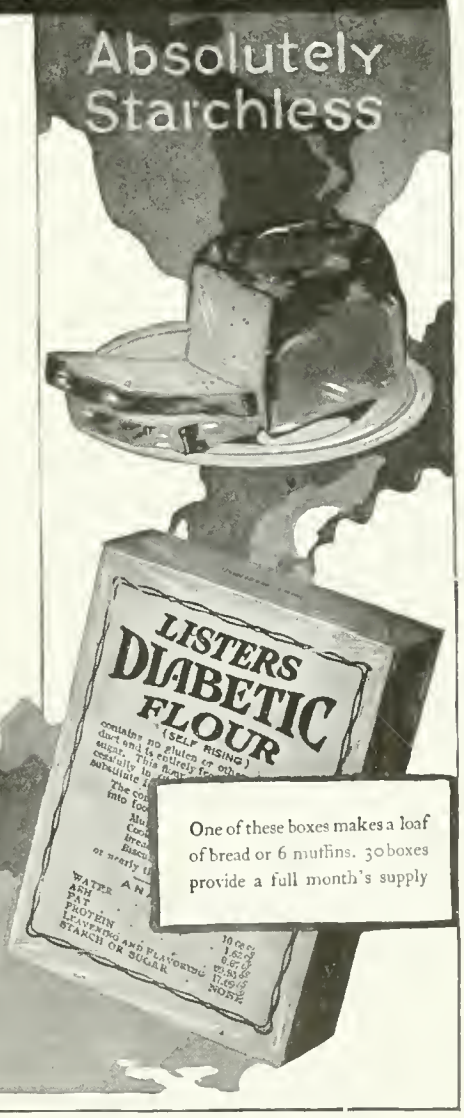
Listers Flour, being non-carbohydrate, is a valuable aid in rendering the patient sugar-free; and also—afterward—in determining the specific tolerance of the patient.

A Month's Supply—30 boxes $4.85
Fifteen Days' Supply—15 boxes 2.75

Will be sent direct to the physician or to his patient

LISTER BROS., Inc.
405 Lexington Avenue, New York City

Coast States—Starchless Food Co., Los Angeles
Canada:—Lloyd Wood Co., Toronto



One of these boxes makes a loaf of bread or 6 muffins. 30 boxes provide a full month's supply

Positive Results Assured

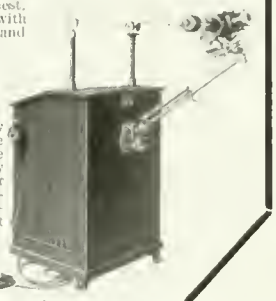
When you use

L-F Coolidge X-Ray Units

Model 530, $960

Expressly adapted to needs of the oral surgeon, who requires films or plates of the frontal and maxillary sinuses as well as intra-oral films, or for installations where both dental and routine medical work is to be done. Fully counterbalanced tube holder. Capable of doing all radiographic work, including chest, stomach and intestinal tract. Equipped with magnetically operated exposure switch and combination cone

30 M. A., Variable Gap, 3 to 5"



Model 310, $650

10 M. A., 3" Gap

Expressly adapted to strictly dental radiography, having the advantages of the right angle Coolidge Tube. Especially easy and rapid adjustments for intra-oral work; fully counterbalanced tube holder, the complete equipment very compact and easily moved about. Can be operated either with patient in dental chair or separate chair

Operates off ordinary light wiring

Both outfits are equipped with the L-F automatic switch, which makes possible the accurate timing of all exposures, insuring uniformity of results.

The Liebel-Flarsheim Co.

410-418 HOME ST., CINCINNATI, O., U. S. A.

Manufacturers of X-Ray Apparatus for the Dentist, General Practitioner, and X-Ray Specialist. Distributors: For the General Electric Co., Portable Coolidge X-Ray Outfit.

The Plant Behind The Products

The Liebel-Flarsheim Co.,
Cincinnati, O.

Please send me, without obligation, further information on Model..... I have ..... volts direct current, ... volts, ... cycles alternating current.

Dr .....

City .....

State .....

Electrically Lighted Surgical Instruments

Twenty years in the manufacture of electrically lighted surgical instruments, if it has not brought perfection in instrument construction, at least has kept the Electro Surgical Instrument Company abreast of the advances made by leading specialists of the medical and surgical profession.

So it is that instruments stamped "E. S. I. Co." speak of the accomplishments of the noted men whose suggestions are embodied in their construction and a service of maintenance possible only in instruments of our manufacture.

Users of instruments stamped "E. S. I. Co." are certain sharers in this service.

Origination begets imitation. Be sure of our exact name.

Illustrated Catalogue Sent Upon Request

ELECTRO SURGICAL INSTRUMENT COMPANY

Rochester, N. Y.

MICHIGAN TRAVELING HEALTH LABORATORY

The Department of Public Health of Muskegon, Mich., recently made a survey of health conditions of Muskegon County resorts, using in the work a truck containing a fully equipped laboratory. Special attention was paid to water and sewage disposal. Impurity of water supply was found at numerous resorts.

FLORIDA EXTENDS HEALTH PROGRAM

Under a new campaign recently inaugurated by the Florida State Board of Health, the health work will be carried directly into the homes of the citizens with particular emphasis in the remote rural districts. Field directors will work simultaneously in several adjoining counties directed by an experienced director of rural sanitation, and a campaign to correct any defects discovered after careful survey will follow.

CALIFORNIA HAS MOTOR CLINIC

The California Tuberculosis Association announces that the Traveling Motor Clinic promised the people of the state will become a reality the first of September. When finished it will be the most complete clinic in the United States. It will have hot and cold running water, two dressing rooms, scales, examination room, moving picture machine, electric stove for winter and fan for summer. It will be used for educational purposes as well as for a clinic.

DENTISTS REPORT VENEREAL DISEASE

In the campaign instituted in the Fall of 1919 among the forty thousand licensed and registered dentists of the United States, a circular letter addressed to each specifically requested the report of all venereal disease observed by them and the reference of such cases to a clinic or a reputable physician for treatment. With the close of the fiscal year (1920) 15,252 dentists of the forty thousand circularized had pledged themselves to report all cases of venereal disease in accordance with the laws and regulations of their states.

MARINE HOSPITAL OPENED

The Marine Hospital, starting with 130 beds, has recently been opened in Chicago and will act as a general clearing house for soldiers and sailors residing in the states of Illinois, Wisconsin, and Michigan who are suffering from nervous and mental diseases. The hospital will be in charge of L. M. Wilbur, M.D., surgeon of the Public Health Service, who has had a distinguished record, particularly in New York, where he served in both private and state hospitals and in the well known New York Neurological Institute.

THE CONTROL OF SMALLPOX

For many years smallpox has been regarded by the people of the United States as a disease that had lost its old time terror, but in 1919 more than two thousand cases were reported in California, and the disease was also found to be prevalent in some of the southern states. In the Province of Ontario, where there has been persistent opposition to vaccination, there was a severe outbreak of smallpox early this year. Here is a condition which may well be viewed with especial concern as a situation calling for activity in promoting sentiment in favor of the passage of law where needed to secure general vaccination, and to support the health authorities in their efforts to see that existing laws are properly enforced.

The Efficiency of Our Employees

Is Reflected in

The Efficiency of Our Product

Scientific apparatus represents more than a combination of material and labor. The interested, efficient, and intelligent cooperation of the workers is needed to produce efficient apparatus.

We have secured such cooperation.

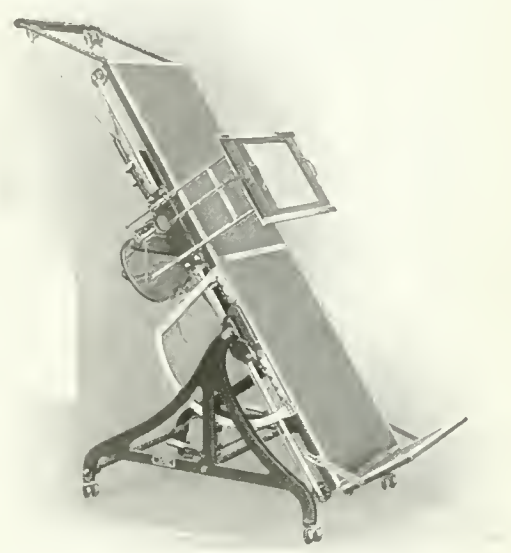
We pay a bonus on production—we penalize defective workmanship.

The man who will not earn a bonus is not wanted. Every employee is an efficiency engineer.

With such support from our organization, the production of QUALITY apparatus is a natural sequence.

Let us tell you about the QUALITY in

Meyer X-Ray Transformers
Meyer Multoscope
Meyer Klinoscope
Meyer Duplex Stereoscope



THE WM. MEYER COMPANY, 1648 N. Girard St., Chicago

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment. Literature and samples from

RIEDEL & CO.
87 Thirty-fifth St.
Broklyn, N. Y.

Breakfast

One Cent per Dish

Quaker Oats costs one cent per dish. Two eggs cost 8 cents—one chop costs 12 cents.

Quaker Oats yields 1810 calories of nutriment per pound. Round steak yields 890.

Quaker Oats costs 6½ cents per 1,000 calories. Average meats cost 45c, fish 50c, eggs 60c.

Quaker Oats forms almost the ideal food in balance and completeness.

From 9 to 10 people can be fed on oats for the cost of feeding one on meat foods.

To make Quaker Oats the basic breakfast means better feeding and a great economy.

Quaker Oats

The leading brand the world over because of its flavor. Flaked from queen grains only—just the rich, plump, flavory oats. We get but ten pounds from a bushel.

The Quaker Oats Company

Chicago

SCIENCE IN INDUSTRY

The United States is no longer dependent on other nations for essential chemicals, owing chiefly to the quickening of American invention by means of the application of ingenuity in both pure scientific research and its application to industrial processes. The maintenance of highly equipped laboratories is not confined to the Government but has become customary with leading corporations. Among the achievements during the past year may be mentioned dyes, potash, medicine, and other chemicals and fertilizers; also lenses and many kinds of machinery. In radio and other electric lines there has also been notable progress.

CANCER IN SWITZERLAND

The *Deutsche medizinische Woehenschrift* is reported as commenting on a recent compilation of cases of mammary cancer in Switzerland, stating that cancer is so prevalent in Switzerland that every twelfth person more than thirty-five years old faces the prospect of dying of cancer. In a recent five year period, gastric cancer formed 37.9 per cent of the cases; cancer of the female genitals, 16.1 per cent; and mammary cancer, 10.6 per cent. The average survival of the operative mammary cancer cases was a little less than five months.

THE MARION NATIONAL SANATORIUM

A unique medical enterprise has been carried out in the accommodations provided by the new mental hospital which was opened at Marion, Ind., early in November. All types of mental diseases will be treated there, from the mildest to the most serious and chronic conditions. The sanatorium will not be a military institution, although its officers have been chosen almost entirely from those who served in neuropsychiatric work during the war.

Plans for the care of the patients include diversions, occupational therapy, and the systematic cultivation of athletics and physical training. Every possible occupation which can be used to arouse the interest and promote the recovery of the patients will be employed and, as soon as complete or partial restoration seems to be in sight, a strongly vocational training will be given to all of the previous activities previously carried on as therapeutic measures.

IMPROVE DIAGNOSTIC METHODS

The United States Public Health Service, which for some time has been making special efforts to facilitate the diagnosis of tuberculosis and especially to bring about its recognition in its very earliest stages, has recently opened mobile training courses for the purpose in Illinois, Wisconsin, Michigan, and Washington. Similar courses have already been given in Texas, Louisiana, Missouri, Virginia, West Virginia, Maryland, and Pennsylvania. These courses, which last seven days and are very intensive, are at present open only to physicians attached to the Public Health Service; but after all of these in the various states have completed the course it is hoped that it may be possible to hold similar courses for the benefit of other physicians who may desire to attend.

The instruction is given by recognized experts in the diagnosis of pulmonary tuberculosis, and is supplemented by the showing of a remarkable motion picture, in six reels, which minutely illustrates every phase of the disease. By such means it is hoped that disease detection will keep pace with municipal facilities for the care of tuberculosis.

ROYAL BAKING POWDER

ABSOLUTELY–PURE

The Prudent Housewife Uses No Other

Contains No Alum

Coffee Prices Are Down

Our price to you drops with the cost to us. You can now have your favorite blend, in same standardized quality, at a considerable saving.

Are you one of our many customers who, having adopted a satisfactory blend, simply tell us from time to time: "Send another lot of our coffee"? We keep a record of your wants, and by our standardization system can always duplicate exactly.

Roasting and Cooling

Grinding and Packing

Bins for Various Blends

Ariston Coffee Cereal Blends

Our Coffee-Cereal Blends—perfect coffee beverages, and not substitutes—also come in for a general reduction from former prices. Note our latest reductions and send us a money-saving order.

The goods are guaranteed. Ship back at our expense if not satisfactory.

Note the following five Blends in placing your order:

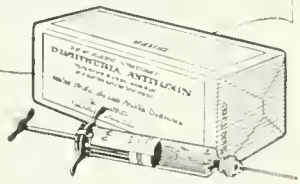
Ariston Coffee-Cereal Blend No. 1, per pound	$0.32
Ariston Coffee-Cereal Blend No. 2, per pound	.30
Ariston Coffee-Cereal Blend No. 3, per pound	.28
Ariston Coffee-Cereal Blend No. 4, per pound	.26
Ariston Coffee-Cereal Blend No. 5, per pound	.24

CALUMET TEA & COFFEE COMPANY

409-411 W. HURON ST. CHICAGO

"DEALERS DIRECT WITH YOU"

DIPHTHERIA ANTITOXIN



Shown by Tests to Cause Least Reaction

In a series of comparative tests conducted by the John McCormick Institute for Infectious Diseases, covering 370 cases and extending over a period of 2½ years, our product—which is manufactured under the personal supervision of P. G. Heineman—gave only 3% of slight and moderate (but no severe) serum reactions.

> "Since the antitoxin has been administered in a solution of almost pure globulin prepared by Heineman's method, the occurrence of serum reactions has markedly fallen, not only in frequency but also in severity." (Medical Report of the Durand Hospital of the John McCormick Institute for Infectious Diseases—March 12, 1913 to March 12, 1918.)

Our laboratories are producing this high grade concentrated serum in sufficient quantities to ensure immediate delivery of your season's requirements.

Furnished in syringes and vials containing the standard prophylactic and therapeutic doses of from 1,000 to 20,000 units.

United States Standard Products Co.

Gov't License No. 65

Laboratories
Woodworth, Wis.

General Office
111 W. Monroe St.
Chicago

SCIENTISTS HUNT NEW DRUGS

According to an announcement recently made by Henry H. Rusby, M.D., dean of the Columbia School of Pharmacy, beginning in January, a party of American scientists will explore about one thousand miles of the Amazon basin in search of new drugs and narcotics, the expedition to be called the Mulford Biological Exploration of the Amazon.

The investigations of the party will be on a purely scientific basis and the general aim will be to make discoveries of an economic value. Insects and animals are to be studied as well as medicinal plants, and photographers will make educational motion pictures.

Doctor Rusby has already made four trips to South America. Before the war he went into southern Colombia to study quinin sources. In 1885 he started a two year expedition to the Amazon in search of medicinal plants. He explored the Orinoco delta for a colonization company in 1893, and on another expedition he sought new sources of rubber supplies. "There remains this one thousand mile tract along eastern Ecuador and Peru from which no specimens of any kind have ever been produced," said Doctor Rusby.

CLINICAL CONGRESS MEETS

The Clinical Congress of the American College of Surgeons had a very felicitous opening in the occasion of the presentation to the College of a mace, symbolic of the best traditions of both Britain and America, and embodying best objectives of the medical profession, which was offered by the Consulting Surgeons of Great Britain as a mark of appreciation of the service of American surgeons during the great war and as an earnest of the continuance of cooperative work between Britain and the United States for the advancement of science.

Dr. William J. Mayo, as retiring president, gave the assembly an analysis of statistics regarding mortality rates after operations for cancer. Allowing for percentages of error, and for variations of records, his deductions pointed out the lines for future progress in lessening mortality after operations. He considered that with such advances as the use of radium, and catgut instead of silk for sutures, operability has increased. While mortality rates may have seemed to grow, the average resultant longevity of the patients has increased, and that the broad result has been beneficial. Dr. Mayo advised the extension of the group medical system to include both medical and surgical work, which would have the advantage of bringing the patient earlier to the service where he would receive the most benefit, and would overcome many of the evils of competitive medicine.

The presidential address of Dr. George E. Armstrong was a treatise on the changes in cell life, the action of colloids, chemical and physical reactions, working out in scholarly fashion many details of this abstruse question.

The John B. Murphy oration was given by Sir Berkeley Moynihan. Beginning with a eulogy of Dr. Murphy and his work as revolutionary in certain important fields of surgery, Sir Berkeley proceeded to an historical sketch of surgery, emphasizing certain notable discoveries from time to time. He showed each successive achievement as growing out of the work of the past. New discoveries are rarely the work of one man, but are worked out in groups. Lister he characterized as the greatest man in the world of medical science, inasmuch as he had by his discoveries transferred surgery from the "pathology of the dead" to the pathology of the living.

The nutrient value of VIROL illustrated in a number of cases, particulars of which have been supplied by medical men.

After being fed on VIROL regularly for five months he is a fine, strong, healthy boy. The Doctor says:—"I have pleasure in confirming the statement of the wonderful improvement made by this child after feeding on VIROL. I feared his case was hopeless."

Maurice Pickering was suffering from blood poisoning. His lungs were also affected. He wasted worse than he appears in above photograph.

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

Viral is a valuable food for invalids and children. It is a preparation composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble Phosphates.

In glass jars:
50c, $1.00 and $2.00

CONCENTRATED FOOD—A well-known medical man writes as follows: "I have never prescribed a better tissue builder than VIROL and I have been in active general practice for over forty years."

The fat in VIROL is so minutely divided that it is more readily absorbed than milk.

Virol

Used in more than 2,000 hospitals, sanatoria, and infant clinics in Great Britain

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

ICHTHYOL

MERCK

Genuine ICHTHYOL is obtainable only in bottles or tubes under the Merck seal

Anusol
HEMORRHOIDAL Suppositories

It is ten to one that in your Hemorrhoid cases and other inflammatory Rectal conditions, you are now an Anusol Suppositories user and enthusiast.

If not, speak to a few of your colleagues.

And we venture to say you'll soon be one.

Sample on request

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX WHITE, RED AND BLACK LABEL AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

UNIQUE GRADUATE MEDICAL SCHOOL

Two hundred of Philadelphia's medical men and surgeons, many of them eminent, are about to share their professional secrets with their less successful brothers through the medium of the graduate school of medicine at the University of Pennsylvania. There is no other school in the United States where so many eminent men take part in routine class room and clinical programs for teaching purposes. Virtually all of Philadelphia's hospitals will be used as clinical laboratories in addition to the clinics and laboratories of the University of Pennsylvania. Research will be nourished, but the major effort will be made to spread the influence of the best present knowledge and skill in the curing of human ills. A limited number of research scholarships are offered in bacteriology, immunology, chemotherapy, pathology, and biochemistry. The holders of these will give their entire time to original work which will be selected and approved by the dean, the vice-dean for medical sciences, and the director of the particular laboratory.

PROTECT THE ILLEGITIMATE CHILD

Action taken by the National Conference of Commissioners on Uniform State Laws at the annual meeting of that organization in St. Louis on August 19 promises that a uniform act will be drawn for the protection of children of illegitimate birth. The principles that should underlie legislation relating to children of illegitimate birth have been worked out under the auspices of the Children's Bureau and the Inter-City Conference on Illegitimacy. Social workers, judges, lawyers, and others have valued, concrete suggestions on the subject and general agreements have been reached regarding the best methods of dealing with the fundamental problems involved.

The *Survey* for September 15, 1920, summarizes the results of the several conferences on this subject. The drafting by the Conference of a standard law or laws covering the basic principles that should be incorporated in the laws of the various states will be of great value to all of the states in framing legislation.

CANCER IN DYE WORKERS

There are circumstances which point very directly to a mechanical cause for some tumors. In the extension of the dye industry in America we are confronted with the possibility that hitherto uncommon forms of cancer will appear and many of these may be attributed to chemical stimulation. Dye workers cancers, says the *Journal of Laboratory and Clinical Medicine*, are interesting because of the fact that they are apparently of pure chemical origin and because they are of very long incubation, appearing to be due, in the case of bladder tumors, to the long continued action of a dilute material excreted by way of the urinary tract, which affects only the mucous membrane of the urinary bladder. This irritating substance, or the ones from which it originates, may be taken into the body through the skin, the respiratory tract, and gastrointestinal tract, and is generally supposed to be anilin or fenzidin. Nassauer believes anilin to be the specific agency and holds that workmen should not be exposed for more than three months. He also believes that by enforcement of proper rules of sanitation, including personal cleanliness, most of the danger can be avoided. In a factory which Nassauer has studied, in which many cases formerly occurred, no case has appeared in a period of fourteen years since the inauguration of strict hygienic requirements.

Digitan (Digipuratum)

Physiologically Standardized Digitannoids

This product, first introduced as Digipuratum is manufactured under license from the Federal Trade Commission and carefully standardized according to the original tests

RAPID AND RELIABLE IN ACTION

Powder and Tablets, 1½ Grains Each

1 tablet or 1½ grains powder equal to 1½ grains of strongly active digitalis leaves (= 8 frog units)

UNIFORM IN STRENGTH

MERCK & CO.

NEW YORK and ST. LOUIS, MO.

Wanted—Back Numbers of Modern Medicine

MODERN MEDICINE frequently receives orders for back numbers that cannot be supplied. Subscribers having well-preserved copies of the back numbers listed below are invited to get in touch with us so that we may order those for which we have sufficient demand. Our files of the following issues are incomplete: 1919—May, June, August, and October; 1920—January, April, and August.

Back numbers ordered by us will be accepted at the price of 25 cents each, the amount to be applied to the seller's subscription. Copies that have been marked, torn, cut, or badly soiled cannot be used. Do not send any copies until our order has been received.

THE MODERN HOSPITAL PUBLISHING COMPANY, Inc.

Subscription Department

22-24 East Ontario Street CHICAGO

Why?

Why do so many hospitals all over the United States and Canada fill their requirements in Absorbent Gauze and Cotton with Curity Brand?

Because—

Curity Quality is Supreme

Lewis Manufacturing Co.

Walpole, Mass.

New York Philadelphia Atlanta Chicago Cleveland Kansas City San Francisco

— 1860 - 1920 —

With the coming of 1920, the house of Reed & Carnrick will round out

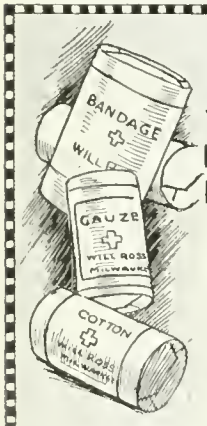
Sixty Years of Faithful Service to the Medical Profession

From the inception of our business we have ever sought the friendship and confidence of physicians, and whatever results we may have obtained, we do not hesitate to attribute largely to the splendid co-operation that has been given us by the medical profession.

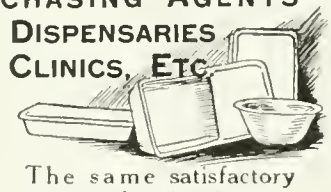
Therefore, in calling attention to this—our Sixtieth Anniversary—we wish to thank our many medical friends not only for their unfailing interest and good will, but also to assure them that, as in the past, we shall continue to regard their confidence as "our greatest asset."

REED & CARNRICK

Jersey City, N. J.



INDUSTRIAL SURGEONS
INDUSTRIAL NURSES
VISITING NURSES
HEALTH OFFICERS
PURCHASING AGENTS
DISPENSARIES
CLINICS, ETC.



Gauze
Cotton
Bandages
Sterilizers
Adhesives
Enamelware
First Aid Kits
Thermometers
Rubber Sundries
Sputum Supplies
Paper Goods, etc.

The same satisfactory service that is given to hospitals throughout America in the furnishing of supplies is available to you. Write for our catalogue It lists merchandise of unquestioned quality at prices that will prove of interest to you.

WILL ROSS

SUPPLIES FOR HOSPITALS, SANATORIA AND ALLIED INSTITUTIONS

MILWAUKEE, WIS. STATESAN, WIS.

Milwaukee Offices: 432 Broadway

FRENCH PHYSICIANS INFLUENCE LEGISLATURE

The medical members of the French parliament hold regular meetings and have recently been able to influence legislation on public sanatoriums. The points on which they especially insisted were that the board of nine members which examines and classifies candidates for posts as sanatorium physicians should include a representative of the medical school of the region, and a representative of the national medical association and of the national *Union des syndicats médicaux*. Also, that a representative of the medical faculty form one of the superior board of five members. The supervision of the public sanatoriums is not to be left to public health officers, but to form part of the duties of the professor of hygiene in the nearest medical school. The medical parliamentary group was also successful in its plea to have the salaries of sanatorium physicians 9,000 and 14,000 francs to start with.

AN AUTO VICTIM EVERY HALF HOUR

Public opinion must be thoroughly aroused through systematic and persistent safety education, declared C. M. Talbert recently before the Congress of the American Electric Railways Association. Ninety per cent of all accidents may be said to occur in public highways, and automobile fatalities have grown from nine per million population, to 110 for each million inhabitants in 1920, or in the United States, one death every thirty-one minutes of the sixteen commonly allotted waking hours.

The total of vehicular accidents increased from 245 per million in 1906 to 253.3 in 1919, while all other forms of accidents decreased 18 per cent. Mr. Talbert advocated as a remedy a direct appeal to "public psychology" and declared that the most fruitful ground for ultimate results is in public and parochial schools.

INTERNATIONAL LABOR PUBLICATION

Albert Thomas, director of the International Labor Office, League of Nations, has sent an official note to members of the Governing Body, Governments, and organizations of workers and employers throughout the world, stating that in accordance with the program of the Director submitted to the Governing Body, the Office has undertaken two series of publications—a monthly scientific review and a daily publication.

The monthly *Review* will be modeled after the official publications of various departments of labor and official statistical bureaus and will be devoted to studies of questions concerning industry and labor, presenting them from the international aspect.

The daily publication will be a bulletin of information concerning the progress of the work of the Office and will contain (1) a daily review of the press, (2) a weekly bulletin of general information, and (3) studies and documents, periodically. In order to classify these studies, they will be divided into twelve series, as follows: (a) social life; (b) economic life; (c) progress of labor; (d) conditions of labor; (e) social insurance, including war victims; (f) industrial hygiene; (g) living conditions; (h) cooperation; (i) protection of women and of the race; (j) education; (k) agriculture; (l) marine.

In addition to the above mentioned publications, the Office will issue from time to time, books on special subjects such as "The Inquiry into Conditions of Employment in Soviet Russia," "The Inquiry into Conditions in Hungary," "The Inquiry on Production," which are now being made, reports of Conferences, etc.

Arsphenamine products should be:

Readily Soluble
Practically Free from Toxicity
Easy of Administration

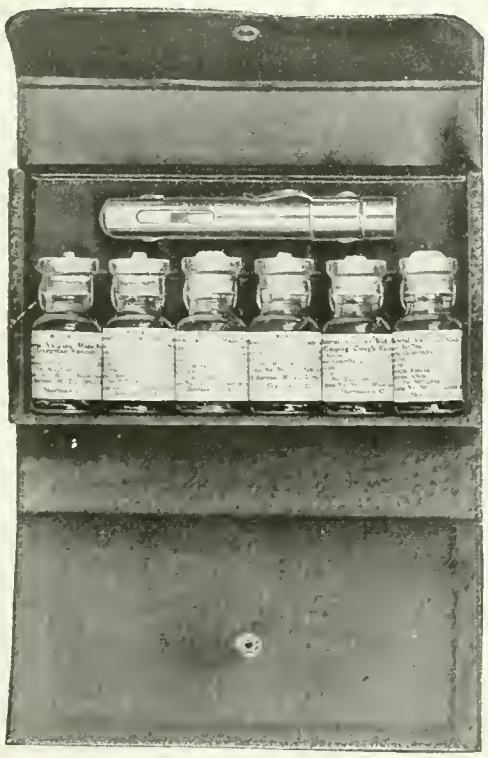
NEOSALVARSAN

(NEOARSPHENAMINE-METZ)

possesses all of these qualities

Order by either name and if your local dealer cannot supply you order direct from

H. A. METZ LABORATORIES, Inc.
122 HUDSON STREET
NEW YORK CITY



SHERMAN'S VACCINE CASE

The best immunizing response in Pneumonia is obtained during the first twenty-four hours after the initial chill. Every hour being vitally important, successful immunologists make inoculations in Respiratory Infections at their first call.

Be prepared; carry an assortment of Sherman's Polyvalent Vaccines and self-sterilizing syringe in this convenient case.

Your dealer will be pleased to supply you.

G. H. Sherman, M. D.
DETROIT - - - MICHIGAN

Largest Producer of Stock and Autogenous Vaccines

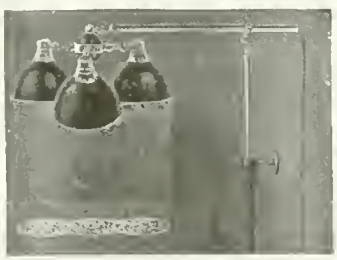
THERMOLITE

A Modern Necessity

The scientifically designed therapeutic lamp is an essential part of today's curative equipment. ThermoLite the lamp that delivers radiant light and heat in PARALLEL RAYS—has proved its merits and won the endorsement of physicians and hospital authorities everywhere.

It relieves pain, reduces inflammation and promotes healing.

The parallel rays of the ThermoLite insure a deepness of penetration which means quick relief. ThermoLite is supplied in two forms—Triplex for hospital, clinic and office use, and Simplex (single lamp, with or without stand) for home use.



Showing **Triplex** adjusted for concentrated application without focusing rays.

Write us for prices and our free book "Photo Therapy."

H. G. McFADDIN & COMPANY

42 Warren St. New York City

WORKERS IN SIGHT CONSERVATION

One of the great difficulties in the way of effectual work among those suffering from defective vision has been the shortage of trained workers, a handicap which will be in part overcome by the provision at the Graduate School of Education, Harvard University, in cooperation with the Massachusetts Department of Education, the Perkins Institution for the Blind, and the Adult Blind. The lectures and demonstrations are designed to give in a short period a comprehensive survey of the general field of work with the blind and the semi-sighted. Particulars in regard to the sessions may be learned from Miss Lotta S. Rand, 17 Lawrence Hall, Graduate School of Education, Harvard University, Cambridge, Mass.

COOPERATIVE RURAL HEALTH WORK

A summary is made in *Public Health Reports* under date of October 1, of cooperative rural health projects carried out during the year ended June 30, 1920, in thirty-one counties and eleven states. The fact that the Federal funds contributed to these projects have in all cases been made with odds of about five to one indicates unmistakably that such investments of Federal funds stimulate to a significant degree state, county, and municipal governments to invest in the business of rural health promotion.

The summarized results show unmistakable value to the community of these projects generally, and the total cost of saving the life of an American citizen by such means as estimated at sixty-six dollars seems a reasonably good investment.

SAIL FOR MEDICAL CONGRESS

Among the American physicians who went to Paris to attend the International Congress on the Classification of the Causes of Death were: Haven Emerson, M.D., former health commissioner, representing the Public Health Association; F. J. Monaghan, M.D., assistant health commissioner, and W. H. Guilfoy, M.D., director of the Bureau of Vital Statistics of the Health Department, who represent the city of New York; and Otto Eichel, M.D., of the Bureau of Vital Statistics of the State Department of Health.

The convention meets every ten years for the proper classification of diseases by agreed names, so that each nation can be assured of the causes of death in other nations, and there will be no confusion of names. The Congress has been called by the French government and will last ten days.

ELECTRO-THERAPEUTIC ASSOCIATION

The Thirtieth Annual Meeting of the American Electro-Therapeutic Association was held in Atlantic City, N. J., September 14 to 17, 1920. The breadth and scape of the scientific papers were of the greatest interest, indicating the specific value of electrotherapeutics and its relation to general medicine. Dosage, technic, standardization, and details of apparatus were interspersed with discussions on dietetics on interpretation of radiographs and the rôle of radium in malignancies. "The Relation of Physiotherapy to Industrial Medicine" formed the subject of the thesis of F. G. Granger, M.D., Boston, and its use in the treatment of industrial disability was presented by William D. McFee, M.D. An interesting section dealt with the treatment of exophthalmic goiter, and "Graduated Exercises in Functional Heart Disease" was dicussed by Maj. B. W. Carr, M.C., and "Myocardial Degeneration" by Albert E. Roussel, M.D., Philadelphia.

MODERN MEDICINE

A Monthly Magazine of Medical & Health Progress for Physicians & for Others Interested in Administrative, Industrial & Social Health Problems

Editors, ALEXANDER LAMBERT, M. D., S. S. GOLDWATER, M. D., *and* JOHN A. LAPP, LL.D.
Managing Editor, JOHN A. LAPP
Editorial and Business Offices, 22-24 EAST ONTARIO STREET, *Chicago*

Volume 2 December, 1920 Number 12

MEDICINE AND THE LAW

ARE we keeping abreast of the demand in this country in the training of physicians and health workers in the newer phases of medical jurisprudence? In these times the much overworked term "revolution" might be truly applied to the changes which have taken place in the relationship of the physician to the law.

Just to cite the example of the workmen's compensation laws is sufficient to prove the "revolution." Surgeons and neurologists, particularly, have been placed in the new position of refereeing in all kinds of complicated physical and mental cases. Lay boards are passing upon medical questions with or without expert medical counsel and a body of opinion has grown up in commissions and courts which has an important bearing upon the training of physicians. Yet a small degree of attention has been paid by medical schools, periodicals, and books to these new phases of medical and legal aspects.

There is also a rapidly increasing relationship between the administration of justice in courts and the medical profession. The movement extends to all countries where scientific criminology has begun to appear. This advance is admirably summarized in the *Lancet* (London) from the address of Sir Richard Atkin, president of the Medico-Legal Society.

He referred to medical jurisprudence as the large body of medical and surgical knowledge applicable to the elucidation of issues determined in courts of law, and commented on the frequency with which doctors are called upon to give evidence. It was painful, he said, to see a medical man sometimes defeated on his own ground by a member of another profession who happened to have a special and perhaps very recently acquired knowledge of the subject; similarly, it was distressing to see a young man, possibly intrusted with a brief for the first time, incapable of making his point against the defense of an expert medical witness. The tendency now was for medical evidence to become more and more prominent in the trial of certain issues; the effect of physical conditions upon conduct was more emphasized, and motives were expressed in terms of pathology. In criminal law offenses against the person frequently necessitated medical evidence. The judge tended to regard the medical man not as an advocate of either side, but as an officer of justice there to help the court in the elucidation of truth. In the instance of murder, he said, it was only occasionally that doubt arose which could be solved by medical evidence, as only the motive of crime was usually in question; but in almost any murder case the question of insanity might be put to a practitioner by the prisoner's counsel. With regard to charges of wounding, which were very numerous, the proof of intention of causing grievous bodily harm was largely dependent upon medical evidence; in this connection, too, arose the vexed question of the state of mind induced by drunkenness, in which condition a large percentage of these crimes were committed. The most difficult class of cases in which medical men must appear were charges of rape and general sexual offenses. The particular issue of virginity was known to be one of uncertainty, and great injustice might be inflicted either upon the complainant or defendant; the medical witness should go no further than he could with complete satisfaction to himself. It would, he considered, be in the interest of the practitioner for the court to have recourse in these cases to the services of its own surgeon—that there should be one man in the district, recognized as an authority in medical jurisprudence, who could relieve the private practitioner of this difficult task. Another important class of cases is that of abortion, a practice the public danger of which necessitates great care in the reporting of suspected instances. In the case of insanity the medical and legal views might be said to differ; a most important move would be the agreement of the professions as to some formula commending itself to both. The question which divided them —namely, that of criminal responsibility—had perhaps been considered too much in relation to murder alone. Other difficult cases requiring medical evidence were those of divorce, those arising under the Workmen's Compensation Acts, and those relating to all departments of public

health—difficulties involving the skill of the lawyer equally with that of the doctor. In neither profession were sufficient pains taken to develop this relation between them. Sir Richard Atkin concluded with the suggestion that medical jurisprudence might be made a post-graduate subject for medical men.

FEDERAL AID TO THE STATES

AT THE recent convention of American bankers at Washington the idea was strongly advanced that Federal aid should not be granted to the states and local communities for work carried on by them. The idea was evidently inspired by a financial man's fears of public expenditures and did not take account of the century of practical and successful experience in Federal aid legislation through which we have passed.

Federal aid or "grants in aid" as it is sometimes called, is an effective means of stimulating the doing of work locally which the Nation wants to have done. It is a form of partnership into which the nation and the states or local communities enter. The nation—the non-resident partnership—offers funds to the states to do a desired piece of work. The state accepts the funds and the responsibility for doing the work as the Nation desires it done. Here is an effective combination to promote work of mutual advantage. Grants in aid by the states and by national organizations to local communities have everywhere proved a practical success.

In the realm of health work the union of national aid with local effort is especially important. Disease knows no boundaries. A local epidemic may become a national menace. Surgeon General Cumming of the United States Public Health Service has expressed himself vigorously on the national phase of the health problem in commenting upon the proposals by the bankers when he called such a policy "shortsighted." "In health work, especially," said the Surgeon General, "it is extremely important to recognize that the prevalence of communicable diseases in one part of the country is of very direct influence on the people elsewhere. Thus the investigations of the United States Public Health Service have clearly shown that the use of a polluted water supply in some remote rural district has often resulted in extensive outbreaks of typhoid fever in large cities hundreds of miles away; the presence of malaria in certain parts of the South has exacted a heavy economic toll from the country as a whole, for example, by raising the cost of cotton to the consumer; the northern investor has paid dearly for the continued prevalence of hook worm disease in various parts of the country, for where this disease prevails labor efficiency is seriously reduced. When the circumstances are carefully studied it is clear that the control of disease is not merely a local responsibility, but a joint responsibility of Federal, state and local authorities.

"For every dollar of Federal money spent, we have secured five or six dollars worth of effective health work. Under the cost-sharing principles of the existing law the Public Health Service has been able to effect very great sanitary improvements at a very minimum of expense. It is the judgment of all who have studied the results of this cooperative effort that the principle of the Federal aid extension under which this work has been carried on is not only thoroughly sound but has proven of the highest benefit to the country as a whole."

EXTENSION OF MEDICAL SERVICES

THE communication from J. Middleton Martin, B.A., M.D., Medical Officer of Health and School Medical Officer of Gloucester, England, presented on page 808 of this issue of MODERN MEDICINE, gives with interesting detail the initial unit of a complete medical service which formed the basis for the health center scheme as developed for the whole of England. Designed to meet medical needs as indicated by a comprehensive survey, utilizing such agencies as were already available, coordinating these, and providing the machinery for consultative service and future extensions in the way of adequate hospital and laboratory facilities, medical service was rendered immediately much more effectual and a flexibility assured to take care of future developments. The scheme just launched for the establishment of referee consultants will not disturb the primary organizations or interfere with the responsibility of the local practitioner for the welfare of the patient. If practitioners avail themselves of these facilities medical service should be greatly improved, and with the addition of consultant service with adequate hospital accommodation, the service will be considered complete.

The success of such a scheme depends on cooperative effort throughout, but it affords a solution of the difficulties in the way of adequate medical service for outlying districts.

If the hospitals of the country are really to evolve as "centers for the prevention and cure of disease, and for the promotion of medical science and education," it will be accomplished through some such means whereby isolated districts will become an integral part of the general medical service so that the latest and best achievements of research may be available to the whole population. We commend Dr. Martin's article to the careful attention of our readers.

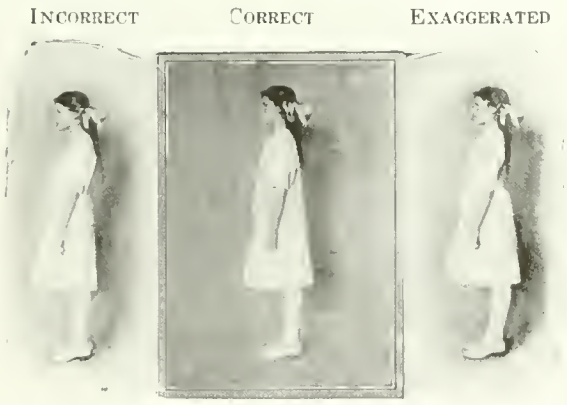
THE AMERICAN POSTURE LEAGUE: ITS HISTORY, WORK AND FUTURE*

By HENRY LING TAYLOR, M.D., New York City

FOR a considerable time thoughtful hygienists, physical trainers, and physicians have attributed much importance to correct carriage of the body as an important factor in maintaining health, comfort, and efficiency.

The body, viewed as a working machine, must have its parts adjusted to each other so that the work in hand may proceed efficiently, and so that its own internal functions shall proceed naturally and without excessive wear and tear or fatigue.

The adjustment of posture and movements to work has been studied with interesting results by Gilbreth and others, but much research is still desirable on the effect of special postures, when long continued, on the internal functions of the body. In general the problems are those of an occupation with too much sitting or standing, insufficient variety of exercise, and too much fatigue, and scientists cannot but approve the efforts of workers and employees to better their conditions. Up to now the main thought has been to increase output, and to scrap worn out machinery, material or human, as considered necessary. It is beginning to be clearly recognized that care of the worker and his tools is equally necessary, and that it pays as a business proposition to eliminate undue fatigue.



All members of the League are furnished copies of boy and girl charts which make a direct and constant appeal for correct habits of posture.

Specifically, in sitting or standing, if the body is habitually bent over, giving a round back, the lungs, heart, and digestive organs are cramped in their action and do not do their work so well. In order that these and other organs may work properly it is necessary, therefore, that the body, at least most of the time, shall be held erect in sitting and standing. It has long been recognized that all slouchiness of posture or morale must be trained out of the recruit in order to make the efficient soldier ready and able instantly to translate the word of command into action.

We are not and we trust never will be a military nation, but we have an army of over twenty million school children under constant training and under governmental orders. How can these children be confined to a seat five or six hours a day without grave bodily harm? Physical training of various sorts has proved helpful, but not a full solution of the difficulty. Games, sports, occupations, recesses, contribute to the well being of children; but posture training must be definite, resulting in habitual postures which shall be free and erect, insuring free play of lungs, heart, and abdominal organs, and elimination of waste. All this increases vigor and efficiency and diminishes fatigue.

This was the general point of view of the educators, hygienists, and physicians who in 1913 associated themselves as the American Posture League to increase interest in the improvement of habitual posture and to set up standards of posture training and to investigate the influences of the immediate personal surroundings such as seating and clothing on posture and to improve these conditions.

The League was incorporated in 1914 under the presidency of Miss Jessie H. Bancroft, director of physical training in the Brooklyn schools. Committees on clothing, shoes, and seating were then appointed. The League was fortunate in including among its officers and members a number of experts who had already made valuable contributions to the subjects given them to investigate, and much time and thought and energy were given to research, especially in the problems of seating, clothing and footwear.

Design Clothes on Anatomic Lines

It was found that many commercial readymade suits for boys were made on round backed models, making it difficult for a straight boy wearing them to stand erect. After conference with an important manufacturer, his coats were re-designed to an erect model, thus favoring correct carriage of the body. Children's waists, maidens' and women's corsets and hose supporters

*The fourth of a series of articles on National Health Organizations prepared for the pages of Modern Medicine.

have been designed in cooperation with a manufacturer, and anatomic models have been constructed which avoid cramping and are supported from the pelvis above the hip bones or from the shoulders near the neck, avoiding any drag on the tip of the shoulder or constriction of the waist.

The technical committee on shoes, after a study of the shoes and lasts on the market, concluded that a study and, if possible, a classification of the forms of feet was necessary. Through the cooperation of teachers, clinics and the Young Men's Christian Association, tracings of several thousand average feet were secured and classified. These tracings included many feet from India and China that had never worn shoes. If these tracings were bisected at the heel, and this axis prolonged forward to the front of the foot, it was found that some feet flared outward from this axis at the ball, some inward, and in some this axis divided the forefoot into equal parts. As the unshod feet fell into these categories as well as the shoe-wearing feet, and the characteristic was showed by both men and women, it was concluded that feet could be divided into the inflare, straight, and outflare types; and lasts embodying this principle, eliminating the pointed toe and high heel and embodying other anatomical features, have been designed in cooperation with shoe manufacturers. These shoes for both men and women are now on the market and are giving great satisfaction.

STANDING POSTURES
INCORRECT POSTURE
The neck and trunk form a zig zag line
CORRECT POSTURE
The neck and trunk form a straight, vertical line
EXAGGERATED POSTURE
This posture can be held only for a short time and with great effort
POSTURE
No. II

It is emphasized that good posture is expressive of courage, endurance, alertness, hope, joy, and the higher emotions.

The technical committee on seating has given much attention to the anatomy of seating and in cooperation with furniture architects has embodied the necessary anatomical features in the Brooklyn Rapid Transit Subway seats, school seats for the various classes and ages, industrial furniture, and office furniture. Owing to war conditions and other causes, the furniture manufacturers have been slow to cooperate, but it is possible to secure various lines of this furniture on special orders.

The League wishes to express its indebtedness to many manufacturers who have freely given of their experience and facilities. In several instances, these manufacturers have made a considerable investment of capital in this untried field which seemed to them, as it has to us, to offer great possibilities, not only of public benefit, but of a substantial return. We are also deeply indebted to the experts who so freely gave of their time and technical knowledge without reward other than the consciousness of having added to the sum of human betterment.

INCORRECT CORRECT EXAGGERATED

Relaxed and poor posture suggests physical or mental weakness, dejection, cowardice, fear, and deceitfulness. Figures in good posture need not be in static military attitude, but may be active or passive.

Work Is Educational

The educational work of the League comprises the publication of a series of posture wall charts, the collection of posture photographs, including school and industrial pictures, lantern slides for lectures on posture, and other illustrative material. Much of this has been used for exhibits of the League's work in response to requests from various organizations. Lists of officially approved material bearing the League's label, and lists of educational material and of reprints of papers prepared by the officers of the League and others are sent on request from the League's office, 1 Madison Avenue, New York City.

Our officers and other experts on the subject of posture have given illustrated lectures from time to time before educational and other organizations, and have published papers in which the

practical value of good posture was strongly emphasized. Our president has just returned from a trip to the Pacific Coast states, where she lectured before large audiences at the principal universities, and reports great enthusiasm and eagerness for information on this topic.

The League has an attractive posture pin which it awards for a certified standard of excellence in posture. It is conducting a prize poster contest in which high school students are invited to compete. This contest is nation wide, including Alaska, Canal Zone, Porto Rico, Hawaii, Philippine Islands, and our new possessions, the Virgin Islands. Two prizes of one hundred dollars each are offered, these being generously contributed to the League by interested members. The object of the contest is to stimulate interest in correct posture among high school students; to learn their reaction to their instruction in physical

The contrast is seen between the correct way of leaning backward and the slump sitting posture. Slouchiness of posture must be trained out of the recruit if he is to become efficient and able instantly to translate a command into action.

training; and to secure two choice posters appealing particularly to this class of students, these to be put into permanent form and listed in the League's educational material.

Take Tracings of Human Figure

The Mosher-Lesley Schematograph, a camera-like instrument used for making tracings of the outline of the human figure from a front, back or profile view, useful in securing a permanent record for study of postures and their effect, may be obtained through the League for use in posture work.

The League gives information to state and national boards and departments, and cooperates in health work with other philanthropic organizations such as the Young Men's Christian Association and the Anti-Tuberculosis League.

Standardize Commercial Products

When commercial use is made of material which has been officially approved on recommendation of one of its technical committees after examination, the use of the League's official label of approval on the goods is required. This is obtained at a very small cost and affixed to the material in order to protect the manufacturer, the League, and the public. By careful management this small income almost finances the very modest office expenses. No official receives a salary or shares in profits. What has so far been accomplished has been at a personal sacrifice by busy

The correct and incorrect way of leaning forward. Physical training solves only a part of our difficulties if habitual postures do not insure free play of lungs, heart, and abdominal organs.

professional experts. Much remains to be done to bring the level of our current knowledge and practice up to that of the average in most lines of ordinary supplies. Research is needed, especially into industrial conditions, and there should be an active propaganda to embody the best standards of clothing, seating, etc., in the commercial output. In order to accomplish what it hopes to and should accomplish, a larger membership, more active workers, and a greater financial backing are needed. The science and art of the matters that have the most direct bearing on our health and comfort are several generations behind the age. It is a new and neglected field, and one in which the medical and nursing professions are peculiarly interested. We make an urgent appeal to all to inform themselves of what is being done to better conditions, to apply ascertained principles in daily, school and industrial life, and in general to study existing conditions, and to cooperate in their improvement.

Underwood & Underwood.

Great talent is shown by these boys at the Walter Reed Hospital in basket making. The work adapted to their needs shortens the tedium of convalescence and makes possible a more complete recovery.

SOCIAL PHASES OF HEART DISEASE IN CHILDREN*

By A. LEVINSON, Chicago

Tell me what a man thinks necessary in the care and training of children and I will tell you all about his ethics, says one of our leading psychologists. If society is to advance progressively it must be in the line of better children more carefully nurtured, and with fewer handicaps.

Intelligence in the pursuit of educational as well as health work demands that society look to the care of the great army of cardiac cases among children whose protection requires more than home care if their lives of tragic, ineffectual effort are to be transferred into spheres of comfort and usefulness. With activities within safe limits they suffer no hardship.

IN VIEW of the enormous number of children with heart disease invalided in children's hospitals, those incapacitated at home, and the many others who run around the street with unrecognized heart lesions it appears strange that so little is written on the social phase of this problem. The heart as the most vital organ, supplying, as it does, the blood to the rest of the body, should command more attention than it at present receives as to its social phases. Such tardy consideration, however, seems to be the fate of this royal organ, for, surprising as it may seem, the circulation of the blood was not known till 1628, when it was discovered by Harvey. One would think that this fundamental vital fact would have suggested itself to the first person who exerted his thinking power when dissecting a human body. Fortunately the medical aspect of heart disease has received quite an impetus of late through the research of Mackenzie, Lewis and many others. It is its social bearings, especially the social phase of heart disease in children, that calls for more attention.

Heart Lesions Preventable

With the exception of a negligible number of cases that are congenital, most cases of heart disease in children are the result of infection and can either be prevented or their hardship lessened. Usually heart disease in children is preceded by recurrent attacks of tonsillitis, very often accompanied also by rheumatism. We are far from advocating the idea that all tonsils in children must come out. The tonsils are in the throat for some purpose, most likely to ward off infection; but as soon as the tonsils become diseased they not only fail to perform their function, but become themselves disseminative of disease and under such conditions should be removed. The same is true of the teeth. They are in the mouth for the purpose of masticating food and helping the process of digestion. However, when decayed and infected, the teeth should be removed. These two correlations, the preservation of healthy tonsils and the removal of badly diseased ones, would prevent many cases of endocarditis in children.

Next to tonsillitis, endocarditis is often a sequence to some other acute infectious disease such as diphtheria, scarlet fever, or pneumonia. The best way to prevent development of endocarditis subsequent to an acute infectious disease is to keep the patient at rest after the subsidence of the disease for a sufficient time to avoid overworking the affected heart muscles.

Next to prevention of heart disease the most important thing is the early detection of its presence. Often when the endocarditis is still acute, a great deal can be done for the patient. The opportunity often presents itself to compare an acute endocarditis which has been treated properly with one which had not received treatment. There is now an unfortunate tendency in medical literature to minimize the importance of heart murmurs. This teaching, which may be justified in the adult patient, has its danger for the child. While often a murmur may indicate no organic changes, it shows the presence of some pathology, even though it may be functional. Unless steps are taken to investigate the type of murmur, a diagnosis of "merely functional" may be reached which is deleterious to the patient. Many a case of so-called functional murmurs has been known to result in generalized edema and all other manifestations of a decompensated heart.

Thorough Investigation Called for

All cases evincing heart murmurs, dyspnea on exertion, or cyanosis, should be thoroughly investigated, and treatment instituted. The question of the valve involved is of minor importance. In fact, it has been shown that in practically all heart cases in children more than one layer of heart tissue is affected; in other words, they are all carditis, instead of being endo-, myo-, or pericarditis.

*The eighth of a series of articles by Dr. Levinson on medicosociologic problems in the field of pediatrics presented in successive issues of Modern Medicine. The series constitutes practically a treatise on child welfare work.

The treatment for endocarditis may vary with the clinician. One phase of treatment, however, everybody agrees upon and that is rest. Whatever else is done for the child, or whether anything else is done, rest must be insisted upon. The rest must be complete for a time. Later, when the heart returns to its normal size, gradual exercise should be instituted. In this way many cases of acute endocarditis may return to normal condition and present no further problems.

How long the patient is to stay in bed is a question to be decided in each individual case, the determining factors being the size of the heart, the presence or absence of murmurs, and the general state of health of the patient. The patient's stay in bed should be made as interesting as possible. Such occupations as knitting and making baskets have been found quite entertaining to this type of patient. When the acute endocarditis has been too severe in character, or when no proper rest has been instituted and a chronic endocarditis has resulted, the patient becomes a lifelong problem, and must henceforth be regarded as an invalid.

Here again, not enough attention is being paid to the social phase of chronic heart cases. Here and there a cardiac clinic is established, and a paper on the subject is published, but such measures do not suffice. Each dispensary should have a children's cardiac department, and each health department should have a special officer to deal with the problems of cardiacs in the public schools.

Of the many problems confronting the mother and the social worker in connection with chronic heart cases, the following are probably the most important: (1) How to keep the patient from overexerting himself, and (2) how to teach the child some method of gaining a livelihood.

Even while in a hospital a child does not like to be an invalid, to rest in bed and do nothing, simply for the reason that his heart does not work well. A child is naturally too active to sit around idle. This problem is still more involved when the child is at home. However much it is explained to the child, he cannot get the proper viewpoint. The only way to keep a child at a minimum amount of work is to supply him with some work, such as cutting of papers, the making of baskets or other kinds of occupation that will keep him fairly quiet but still doing something. In the hospital, teachers of occupational therapy help a great deal in this regard. The home case requires the mother to play the part of the occupational therapist.

Vocational training is of even greater importance to a child with this handicap. A patient with chronic endocarditis is not able to do heavy work, but is, as a rule, able to do light work, unless the heart becomes decompensated. It is up to those who are interested in child welfare to teach a child with chronic heart disease some light occupation so as to make it possible for him to earn his living and at the same time avoid too great a stress upon the heart. Of course, not every case of heart disease is affected to the same degree, and it follows that an occupation that is proper for one case may be deleterious for another. Yet some general rules may be established in such cases and in addition to such safeguards each case should be examined frequently, and the occupation of that individual guided by the advice of an expert physician. Indeed, it might be advisable to have all cases of chronic heart disease registered in some heart bureau, where the patient could come from time to time for reexamination and for advice. Whatever the future work of the particular patient may be, it would be advantageous to institute the teaching of a trade or a profession early in life so as to enable the child to master the profession or trade by the time it becomes necessary for him to earn a livelihood.

Public Schools Serve Public Health

The question of schools for cardiacs is one that requires much thought. There is at present no uniformity of opinion as to whether or not a child with endocarditis should attend school. Some physicians advise every cardiac child to stay away from school so as to avoid overexertion; others allow the child to attend school as long as the heart is compensated. It is my belief that if the child is under supervision, attends school only part of the time, and does not walk many flights of stairs, no harm will be done to the heart. The ideal thing would be to have special schools for cardiac children which would make it possible for the teacher to pay close attention to the child, and in which the child would not be called upon to walk stairs.

The question of diet for cardiac children requires the closest attention. A disabled heart cannot furnish as much blood to the stomach and intestines as a sound heart and, as heavy food or large amounts of food require a greater blood supply to the digestive organs, it becomes important to regulate the diet of cardiac cases.

The urine of a cardiac should be examined at frequent intervals. If not watched closely, and at times, even if watched, the cardiac will develop an insufficiency of the kidneys. The blood vessels of the kidney are so dependent on the heart that, when the heart is affected, the kidneys suffer. The interrelation between the heart and blood ves-

sels has given rise to the term cardiovascular disease, a term broad enough to embrace the secondary changes arising from cardiac trouble. In order to keep informed of the vascular changes in the kidneys urinalysis should be done at frequent intervals. One of the best means of determining kidney function is to measure the twenty-four-hour output of urine and compare it with the fluid intake during the same twenty-four hours. The presence of albumin and casts naturally is of great importance.

It is not very easy to carry out these examinations with the patient at home. Both the patient and his parents often disregard the instruction. They get tired of coming to clinics with a bottle of urine for examination when nothing else is done for them, and it is here that the social worker can do her share. She can impress upon the patient and his parents the necessity of these examinations which may for a long time prove negative. She can impress upon the patient that it is his business to adhere to the régime outlined by the physician; otherwise, the tests will become positive and may prove a detriment to life.

Some cardiacs present problems aside from those relating to the heart proper. These are the patients whose endocarditis is coincident with some other complication, such as tuberculosis, or asthma. These cases require special medical and social care. At times they require to be sent away from home for their asthma, and still the heart may not stand the new climate. Such cases require a great deal of thought and attention, and it is only the conscientious physician and social worker who can alleviate the suffering of these little patients.

WHEN THE EYE-GATE IS CLOSED

DIVERSE reasons have been assigned for the neglect of certain urgent problems that have to do with public welfare, but an all inclusive explanation of the prevalent reluctance to consider them is that it is entirely a matter of attitudes, these matters being regarded as problems difficult of solution instead of as questions of vital interest open for investigation, and emotions get organized around them so that the investigations undertaken are approached with a strong personal bias for the result feared or desired.

International.

In the institute for Blind People, Amsterdam, Holland, children are instructed not only in the "livelihood arts," but are taught the elements of mathematical science by means of the ciphering board, and to read and write in the Braille system. Their mental training does not lag because one avenue of information is cut off.

International.

Through the aid of a blocked board similar to a large type box in which square blocks with raised dots are set or removed according to the operations involved, the elements of mathematical science are made clear to the blind. By such means the blind are made to "see" despite the loss of this important sense.

In the matter of education, for instance, it is popularly conceived that Johnny gets along well in school because he is "exceptionally bright," and that Mary is retarded because of slow mentality or of deficient capacity. The facts in the case may be the other way around; Johnny may be the duller, but better understood and more intelligently handled according to the lines of his natural predilections; or in the case of Mary, there may be closed one or more of the avenues of sense impression so that she does not apprehend what is expected of her. Only in-

telligence quotients scientifically arrived at will serve to indicate whether any two cases are parallel, if indeed they are at all comparable.

Our whole idea of what constitutes the phenomenal world must be gained through the avenues of the senses. Sense perceived objects are popularly thought of as consisting of matter. Our notions of natural phenomena, ponderosity, hardness, impermeability, configuration, motion, color, warmth, and the rest, must be gained through muscular or pressure sensibility, or through the faculty of vision. Such mental abstractions as may afterward develop, grow out of the organization of such perceptions, and their extent and verity ultimately depend upon the integrity of the senses, and of their special training.

There is nothing in the popular notion that the blind are beneficently endowed with some sort of a sixth sense

International.

Though deprived of the sense of sight, this boy is gaining a knowledge of the principles of geography and the formation of the world's surface through the touchstone of a raised map.

to compensate for their loss of vision. A child blind from birth is retarded mentally to the degree that his handicap is not overcome by special training and by carefully adapted apparatus to provide substitute means of communication. The popular commiseration for the state of the blind which gives him charity instead of the requisite training, or which seeks to do everything for him instead of bringing out his own powers of self-help, thus forcing upon him a "place in a corner out of reach of all danger like a feeble old man or a child in swaddling clothes," must give way to the conception of these handicapped as normal human beings minus one sense, who are entitled to a training adapted to their needs which will open to them every possible avenue of communication.

International.

This picture, taken at the Institute for Blind People at Amsterdam, Holland, shows the special writing machine on which the blind pupils learn to prick the "Braille" letters in the paper.

The "poor dear" treatment never got the blinded soldiers out of their difficulties. Their problem was primarily psychic. Their fund of knowledge was normally organized on a sight basis. Once the first psychic depression was overcome, they were less handicapped than they had thought, and their period of adaptation was remarkably shortened by re-education. In these cases and in the case of the industrially blinded the problem is largely vocational re-education, but the blind child without special sense education, reduced to organizing his knowledge on a sightless basis, suffers a mental handicap and needs education not only to earn a living, but to learn how to live. S. P. M.

THE INDUSTRIAL MEDICAL OFFICER

In an address on industrial medicine recently, Dr. S. Dana Hubbard states the problem of the medical officer of the plant:

Medical aid almost specifically concerns industry. It is not sufficient simply to have a dispensary in the plant with hours for advising or treating such employees as may from time to time need medical advice, or to have first aid applied. Industrial medicine demands not only a knowledge of the human body, a knowledge of the conditions which impair it, as well as the means for restoration when impaired, but also the more necessary measures that will enable workmen to reach and maintain their greatest capacities for good work. The ability of medical officers to participate in this plan establishes the logical relation of medicine to industry.

Since the value of medical service will be measured by its effect on production, the most useful industrial medical departments are those best able to avoid accident and prevent absence incident to illness which means, loss of time, unnecessary expense to both management and worker, as well as increased labor turnover, diminished production, and in frequent instances waste of material. The human element must be known and evaluated. The long way is the safe way, but it is the short way which usually is taken and is the dangerous way because human nature loves to take a chance. Managements and labor both seem today to object to the long way. If time is so essential a factor that the long way must be sacrificed, how can labor be speeded up without actually occasioning a breakdown or heating up of the human mechanism?

THE MONTH IN MEDICINE

A Survey of Current Medical Literature

SOLOMON STROUSE, M.D., *Editor*

ASSOCIATE EDITORS

JEROME E. COOK, M.D., *St. Louis*
Diseases of Heart, Chest and Lungs

JOHN B. HAWES, M.D., 2nd, *Boston*
Tuberculosis

HUGO EHRENFEST, M.D., *St. Louis*
Gynecology and Obstetrics

SIDNEY I. SCHWAB, M.D., *St. Louis*
Neurology and Psychiatry

LEWIS J. POLLOCK, M.D., *Chicago*
Neurology, Psychiatry and Psychology

JOHN GREEN, JR., M.D., *St. Louis*
Ophthalmology

MAURICE H. GIVENS, M.D., *Pittsburgh*
Biochemistry and Metabolism

JOSEPH C. BOCK, Ch.E., Ph.D., *Milwaukee*
Physiological Chemistry

BORDEN S. VEEDER, M.D., *St. Louis*
Pediatrics

T. C. HEMPELMANN, M. D., *St. Louis*
Pediatrics

J. ARCHER O'REILLY, M.D., *St. Louis*
Orthopedic Surgery

RALPH B. BETTMAN, M.D., *Chicago*
General Surgery

GEORGE L HOFFMANN, Ph.D., *Pittsburgh*
Bacteriology, Contagious Diseases, Hygiene

WILLIAM THALHIMER, M.D., *Milwaukee*
Bacteriology, Pathology, Serology

E. H. SKINNER, M.D., *Kansas City, Mo.*
Roentgenology and Radiotherapy

THE AMERICAN JOURNAL OF OBSTETRICS AND GYNECOLOGY

WE have just received the first copy of a new medical publication, the *American Journal of Obstetrics and Gynecology*. For some time past there has been no journal exclusively devoted to this highly important branch of medicine in this country, where gynecology had its birth and obstetrics made some of its most notable advances; and yet, such special journals are indispensable for the focalization and progress of their respective specialties. We, therefore, welcome warmly our new contemporary in our midst. English speaking physicians all over the world who are interested in this field will hail the advent of this journal. It is, at the present time, the only one of its kind in the English language.

It is safe, then, to predict a brilliant future for the new enterprise. A large editorial board represents the leading specialists on this continent who, we are told in the foreword, are taking an active part in the management of the journal. The editorship is in the hands of Dr. G. W. Kosmak, of New York, a man whose great experience both as a medical editor and as a clinician and teacher renders him pre-eminently suited for his distinguished position. The department of reviews and abstracts is in charge of Dr. Hugo Ehrenfest of St. Louis, and this part of the journal, as it appears in the issue before us, promises to be one of the very strong attractions of the publication.

This first copy makes the best possible impression. The papers published are of the very highest type, establishing at once an elevated standard. Illustrations are numerous and good, and the entire make-up of the journal is pleasing and dignified. The C. V. Mosby Company of St. Louis, as publishers of the new journal, are to be congratulated on its energy, and its willingness to serve the interests of science and the needs of the medical profession.

G. G.

THE SO-CALLED ENDOTHELIOMA

MALLORY[1] has made a very excellent and extremely detailed study of the cytology of "the so-called dural endothelioma," as well as of the "perineural fibroma" of the central and peripheral nerves. He has used special stains for determining the nature of these cells, and he is an authority on staining reactions of cells.

It is unfortunate that the common tumor of the dura, which is the one studied by Mallory, is almost universally called *dural endothelioma*. These tumors cannot properly be given this name, since, as Mallory points out in his first conclusion, the dura is not lined by endothelium. MacCallum[2] also makes this point clear in his "Textbook of Pathology."

The erroneous terminology in calling this tumor endothelioma is only one of a long list in which pathologists have given names to tumors, regardless of their histological origin.

Mallory has made clear in his study that "so-called dural endotheliomas arise from the lining layer of the arachnoid." These arachnoid cells arise early in embryonic life from the mesenchyma, and belong to connective tissue type of cells. When these cells proliferate, they first give rise to fibroblasts. Mallory has demonstrated that the tumor under discussion is fibroblastic in origin and that it arises from the arachnoid. He suggests the

1. Mallory, F. B.: The Type Cell of the So-Called Dural Endothelioma. Jour Med. Research, 1920, xli, 349.
2. MacCallum, W. G.: A Textbook of Pathology, 1918. Author please complete reference.

name *arachnoid fibroblastoma*. It has characteristics which are different from fibromas—or fibroblastomas—found elsewhere, such as peculiar whorl-like formations, sometimes producing pearl-like structures, etc. The tumors arising from the perineurium and endoneurium are likewise different from the usual type of fibroma, and have been known as neurofibroma, false neuroma, fibroneuroma, and Von Reclinghausen's disease. These tumors also differ from the arachnoid fibroblastoma and from the common types of fibroma. The term suggested for this tumor is *perineural fibroblastoma*.

The common tumor of the nervous acusticus and other central nerves is a perineural fibroblastoma. It is important to note that this is a different type of tumor than the arachnoid fibroblastoma.

One important practical point brought out by Mallory is that whereas the arachnoid fibroblastoma can invade the dura, skull, and soft parts outside, it cannot pass through the arachnoid and invade the brain. This is believed to be because it has risen from the arachnoid.

Attention is here called, therefore, not only to the proper terminology of these tumors, but also their cytological structure and origin, as this is important for the proper conception of the nature of these tumors.

Attention may properly be called at this place to the following erroneous names for tumors: *Perithelioma* cannot be considered a correct name, since there is no structure which it is proper to call *perithelium*. "So-called endothelioma" of the peritoneal cavity, pericardium, and pleura, is an erroneous name, since these cavities are not lined by endothelium, but are lined by mesothelium. These last mentioned tumors can more properly be considered as epitheliomas, and certainly behave as such.

W. T.

POST OPERATIVE PULMONARY COMPLICATIONS

"POSTOPERATIVE pulmonary complications constitute a serious menace to any patient who submits to operation. Reliable statistics show that one patient in every thirty to fifty patients operated on, no matter what the anesthetic, develops a pulmonary complication, and one patient in every 150 to 175 patients dies from some such complication."

This statement taken from an article by Elliott C. Cuttler and Alice M. Hunt[1] is highly significant. Such a postoperative mortality, from a single set of complications, is appalling, even when it is considered that in the majority of cases a bronchopneumonia may mark the terminal stage of any *exitus fatale*.

Reviewing their article: The authors report 1,562 patients actually submitted to surgical operations under anesthesia, 55 of the series developing a definite postoperative pulmonary complication, fatal in eleven cases.

A combined report of the Mayo Clinic of 1910, 1912, 1913, Montreal General Hospital, Massachusetts General Hospital, and the Peter Bent Brigham Hospital showed the astounding fact that about 2 per cent of all patients developed a postoperative pulmonary complication, with a mortality of 25.2 per cent; or, that approximately one patient in every 185 operated upon died as a result of this complication.

Pulmonary complications occur most frequently after operations involving the epigastrium. In their first study the authors found a morbidity incidence in operations in the upper abdomen of 7.7 per cent. In the series under consideration the incidence was 8 per cent, and they quote Laewen as reporting a morbidity of 8.1 per cent following epigastric operations.

During the colder months of the year pulmonary complications were more frequent, a finding which confirms the observations of Whipple, Armstrong, and others.

The anesthetic is not the chief factor in producing the pulmonary complication but plays a very minor rôle. "Ether pneumonia" is an unfortunate misnomer. They quote Henle, Gottstein, and v. Mikulicz as reporting more pulmonary complications following local than following general anesthesia. The morbidity percentage at the Peter Bent Brigham Hospital following ether was 3.39, gas-oxygen 4.24, local 1.63 per cent. However, it is to be remembered that the poor risks were given gas or local. The rôle played by sepsis is shown by the fact that all fatalities occurred either in patients who were operated upon primarily for inflammatory lesion or in whom the site of operation, being in an unclean field, such as intestinal operations, might readily favor the occurrence of sepsis.

In analyzing the pulmonary complications the various clinical entities are discussed.

Lobar pneumonia played an unimportant part. Only 4 cases, or 7 per cent, of the pulmonary complications fell into that classification, and in this group there were no deaths. Nitrous oxid and oxygen was given in one of these cases, ether in the others.

Bronchopneumonia comprised the largest group of all of the postoperative pulmonary complications—21 of the 55 cases—and 8 of the 11 deaths of the total 1,562 operations could be ascribed to its occurrence. The authors admit the danger of being misled, because "the majority of old people at necropsy show some terminal bronchopneumonic process," but add that "we have tried not to include in this group patients who have died with a bronchopneumonia, where we felt that the bronchopneumonia was not the really important factor." The patients in whom bronchopneumonia did develop were on the whole poor risks. More than half of them were at least fifty years old and had at the time of operation either some pathological lung findings or were septic. Trendelenburg position may be blamed in a few instances. In most cases the complication was probably caused either by direct extension of the infection, or by emboli thrown off during epigastric manipulations.

Bronchitis caused 30 per cent of the pulmonary complications, but no deaths. About one-third of the bronchitis cases followed herniotomies, which may be accounted for by the emboli being thrown into the venous circulation by injury to the delicate pampinoform plexus. Pleurisy causes less than 4 per cent of the pulmonary complications and lung abscess occurred but twice. Empyema occurred only once and that time following an operation on the pleura itself. Pulmonary embolism occurred three times with two fatalities.

The authors lay stress on the fact that following operations where the chest is splinted either by tight dressings or by the patient himself through voluntary and involuntary efforts to avoid pain which might follow more ample respiratory motions, the incidence of pulmonary complications increased, probably due to the resulting hypostatic condition.

The authors believe that embolism is the chief cause of pulmonary complications. They do not believe irritation caused by the anesthetic to be an important factor except in those cases presenting evidences of pulmonary lesion before the operation. They point to the morbidity

1. Cuttler, Elliott C., and Hunt, Alice M.: Post-Operative Complications, Arch. Surg., 1920, I, No. 1, pp. 114.

rate following local anesthesia. They believe the danger of sepsis lies in embolism. In discussing the embolic theory they say: "The men considered as gentle, slow operators have a proportionately lower morbidity, which we consider to be an added reason for the embolic theory. These men, though subjecting their patients to a longer operation, cause less trauma and therefore less embolism."

In the summary the article concludes that "embolism from the operative field is the chief factor in the etiology of pulmonary complications. It is favored by sepsis, trauma, and the mobility (immobility [?] Ed.*) of the part. Other factors of varying importance are pre-existing lung disease, irritation of the anesthetic, and such general factors as old age, chilling, and poor general condition." The following prophylactic measures are suggested: (1) A reduction in operative trauma in an effort to produce as few and small thrombi as possible (2) every effort in septic cases to prevent further extension of infection. . . . (3) The avoidance, if possible, of operating on patients with an existing lung lesion, however slight; (4) avoidance of chilling both by cold packs in laparotomies or by widely gaping wounds and by exposure after operation; and (5) making each case before operation as good a risk as that case can be made.

The assertions and statistics of the paper in question are startling, to say the least. Most of us have been under the impression, especially of late, that the average operative mortality was low and that the mortality from pulmonary complications was much lower.

In order to quote definite statistics from standards works we searched through many of the recent publications. The conclusion arrived at is that there is an urgent need for reports from various institutions regarding their postoperative mortality. Practically all the authors cite the same references as those quoted by Cuttler and Hunt, such as Bibergiel, Whipple, v. Mikulicz, Henle, Lexer, and Wolff, but make no allusions to more recent publications. Brunn[2] reports 56,233 ether anesthetics with eleven deaths. He does not state whether this is a total postoperative mortality, an immediate mortality, or a mortality due solely to the anesthetic, but we surmise that this last is what he means. O. F. McKittrick[3] says, in speaking of postoperative pneumonia: "the percentage is very small, ranging from 0.04 per cent, as reported by Beckman, to 2.2 per cent, as reported by Whipple," but, further, "these figures are considered low and probably do not present the true incidence of the condition." He quotes Bancroft and Beckman as saying that septic emboli cause many of these conditions. McKittrick adds one very plausible cause for the incidence, namely, that in most hospitals the former habits of the surgical patient are disregarded and he is given a night gown of light weight, open in the back, a certain amount of covering, regardless of whether he is accustomed to heavy woolen pajamas and many blankets or scarcely any covering at all.

Joslin and Gage (4) noted that at Camp Devens in a series of 1,423 operations pneumonia developed in 2.1 per cent; 75 per cent of these followed abdominal operations. They claim this high incidence was due to prolonged anesthesia rather than to the actual site of operation. They add: "Our observations would seem to us to indicate that these postoperative pneumonias are really inhalation pneumonias and that the administration of the anesthetic, the exposure of the patient to cold and wet during the operation, the care until full consciousness is restored, are the important factors to be considered in studying the means of prevention."

We hope that others reading the article of Cuttler and Hunt will be startled as we were, and that those who are in a position to do so will realize the urgency of reporting statistics from their various clinics and hospitals. We would recommend that all the large, accredited hospitals report the following statistics: (1) Total number of cases operated and type of operation. (2) Total postoperative mortality. (3) Percentage of this mortality due to lung complications, other complications, etc. To ascertain the percentage of postoperative pulmonary morbidity is a task which demands the careful and painstaking work which Cuttler and Hunt have devoted in preparing their article.

If it is true that one patient of every 150 to 175 operated upon in the average city hospital dies, not as a result of his original disease, not as a result of shock, hemorrhage, or other operative complications—which at times seem unavoidable—but as the result of a complication which had nothing to do with the previous illness, and which might be favorably modified by certain precautions, we ought to realize it. If such a specter exists, the surgeon ought to be fully aware of it and bear it in mind in giving a prognosis. If it is true that one out of every 150 to 175 cases operated upon dies from pulmonary complications, the surgeon must frankly throw this objection into the balance when weighing the disadvantages against the advantages in so-called elective operations.

R. B. B.

2. Brunn, M. V.: Centralbl. f. d. Grenzgeb. d. Med. u. Chir., 1913, September, pp. 106.
3. McKittrick, O. F.: Bartlett's After-Treatment of Surgical Patients, Chapter xxxiv.
4. Joslin and Gage: Med. Clin. of North America, 1918, II., 469.
*Editor's note.

RAPID METHODS OF PNEUMONIA TYPING

IN EVERY case of pneumonia, whether it is one of classical lobar pneumonia or one of the peculiar kinds of pneumonia which have been occurring in recent years, the type of Pneumococcus which causes the infection should be determined. Whereas the clinical results of administration of Type 1 Antipneumococcus serum in cases infected with Type 1 are not absolutely clear cut, nevertheless sufficient has been accomplished with this serum for its use to be continued. It is unfortunate that there is no satisfactory serum for types of Pneumococci other than Type 1. The Antipneumococcus serum of Kyes is a polyvalent serum and some favorable reports of its use are in the literature. The supply of this serum, however, is limited and it is not yet available for general use. The only available serum is the Antipneumococcus Type 1 serum and this can be used only for Type 1 Pneumococcus infections.

The original methods[1] for typing Pneumococci take quite a number of hours for their completion. Although the technic is not very difficult, it contains many pitfalls, and in all probability many of the poor results reported from use of Type 1 Antipneumococcus serum can be attributed to erroneous typing of the Pneumococci. A number of simpler methods have been devised but some of these also take a comparatively long time to do.

The most recent rapid method reported is that devised by Oliver.[2] He utilizes the fact that Pneumococci are soluble in bile and he places pneumonia sputum and bile together in a test tube. After solution of the Pneumococci has occurred, which takes place almost immediately, this mixture is brought in contact in separate test tubes

1. Litchfield, Lawrence: Pneumococcus Meningitis—Treatment by a Specific Antipneumococcus Serum, Jour. Am. Med. Assn., May 10, 1919, lxxii, 1345.

with the three types of Antipneumococcus serum. He states that a precipitin reaction occurs in a very short while, always within a half hour. This reaction takes place best with a specimen containing Type 1 Pneumococci. Oliver has controlled his work with the standard methods and, whenever he could determine the type with his method, it could be verified by the other methods. When he could not determine the type, the other methods always showed either a Type 4 Pneumococcus, or a Streptococcus, for neither of which is a therapeutic serum available. Two things recommend this test, it is simple and it is rapid. It should be tried out in various laboratories in the hopes that Oliver's results will be verified. If with this method a Type 1 Pneumococcus infection could be determined within a half hour, it would be a great satisfaction in the very sick patients to be able to administer Type 1 Antipneumococcus serum, since the older and longer methods of Pneumococcus typing consume too much time to be of any benefit to the patient.

In typing pneumococci attention should be called to another method in which the blood of the patient is used, and, therefore, sputum—which is sometimes difficult to obtain—is not necessary. This method in the hands of Loewe,[3] who devised it, has given consistent results. It is, therefore, important that this method should also be tested at other places. The advantage of this method is that in cases in which no sputum is available, and when it is not desirable to perform a lung puncture to secure some of the pneumonic exudate, the patient's blood can be used to determine the type of pneumonia. While this method takes less time than the older methods, it is not as short as the one described by Oliver. W. T.

THE TOXIC STATE OF MENSTRUATION

THE "Studies in the Psychology of Sex" by Havelock Ellis contain as an appendix to one of the six volumes a most interesting essay entitled "The Influence of Menstruation on the Position of Woman." In it Ellis discusses the belief, prevalent in the past and still at the present time among primitive and civilized peoples in widely different parts of the world, that woman is "unclean" during menstruation. She is supposed to paralyze social activities, being possessed by evil spirits; and to destroy the powers of life, causing flowers to fade, fruits to fall from the trees, grains to lose their germinative power, and grafts to die. All this is summed up in those old lines:

Oh! menstruating woman thou'rt a fiend,
From whom all nature should be closely screened.

A former belief also in beneficial powers exerted by her, such as those of a prophetess or as protectress of the orchard against caterpillars, as mentioned by Pliny, in our own time seems to have disappeared. A widespread faith in her pernicious influence alone survives. It still can be easily traced in practical and commercial—and even medical quarters. In the great sugar factories of northern France the regulations strictly forbid a menstruating woman to enter the factory while the sugar is boiling or cooling. To turn to the East:—in the opium factories of Saigon no woman is employed, because her presence during menstruation would cause the opium to become bitter. As recently as 1878, a lively correspondence was carried on in the *British Medical Journal* in response to the question of a physician whether it is true that hams would be spoiled if cured by women during menstruation. One physician expressed his surprise at such a discussion, since he thought that this fact was well known to every housewife; and one physician facetiously inquired, if this is so, what happens to the patients of a menstruating lady doctor? Ellis ascribes to the persisting influence of old primitive ideas the dread of some surgeons and gynecologists to operate on menstruating women. He considers such an attitude a tissue of phenomena, inextricably woven, of folk lore, autosuggestion, false observation, and real mental and nervous anomalies incident to menstruation. In an advanced civilization these ideas of a special and mysterious connection between the menstruating woman and the occult forces of magic tend to die out. Ellis closes his most instructive essay with the following sentence: "Menstruation is no longer a monstriferous state requiring spiritual taboo, but is a normal physiological process, not without its psychic influences on the woman herself and those who live with her."

Every modernly trained physician will readily subscribe to this opinion—if he has not run across an article, quite recently published in the *Wiener klinische Wochenschrift*[1] by the well known pediatrician, Professor B. Schick of Vienna.

A young woman, employed in his office, by his orders placed a bunch of fresh and beautiful roses in a vase. The next morning they were withered and dead. He suspected neglect on the part of the girl, but she confessed that she quite expected this to happen, because all flowers die which she touches during the time of her menstruation. Schick, thoroughly familiar with the many superstitious beliefs concerning menstruation, decided to investigate this matter, and proceeded entirely in accord with the approved methods of exact and scientific investigation. He made control observations, recorded the duration of touch, prevented direct touch by means of rubber gloves, added circulating blood, menstrual blood, also sweat of menstruating and non-menstruating women in varying quantities to the water in which flowers were kept, ascertained difference in the effect of yeast on rising dough manipulated by menstruating and non-menstruating women, etc., etc. Those interested in this study—to our best knowledge the first scientifically correct study of an assumed toxic influence of the menstruating woman—are referred to the original article for further details. These investigations are not as yet completed, but Schick already feels fully justified in asserting that at the time of menstruation a toxic substance is formed in the organism which exerts a distinct deleterious effect on blooming flowers, and, less markedly, affects yeast cells. This toxin circulates, probably within the red cells, through the blood stream. It is excreted by the sweat glands and with the menstrual blood. Its noxious effect is evident during the duration of the menstrual flow, though possibly at its very beginning and end this toxin exerts an actually stimulating effect on flowers and yeast growth. Different individuals show this phenomenon of toxicity in varying degrees. In some it seems permanently absent; but in those who exert this effect its presence can be established in every menstruation. Schick suggests that this latter fact, if finally confirmed, might possibly be found to have some relation to the symptomatology of menstruation in the individual patient.

This interesting article, written by a recognized medical authority, is worthy of serious consideration. It cannot fail to stimulate widespread and thorough investigation

2. Oliver, Wade W.: A Rapid Method of Pneumococcus Typing, Jour. Infect. Dis., 1920, xxvii, 310.
3. Loewe, Leon, Hirschfeld, Samuel, and Kaufmann, Wallach: A New Method for Typing Pneumococci by the Use of Blood, Jour. Am. Med. Assn., July 19, 1919, lxxiii, 170-171.

1. Schick, B.: Wien. klin. Wchnschr., 1920, xxxiii, 395.

of this problem. The near future undoubtedly will bring us many enlightening contributions and possibly a satisfactory explanation for that ancient but unshaken belief of the laity that menstruation is some sort of a cleansing process in which woman rids herself of poisonous matters.

H. E.

STUDIES IN CHOREA MINOR—A COLLECTIVE ABSTRACT

By PARK J. WHITE, JR., M.D., St. Louis, Mo.

THE literature on the subject of chorea minor since 1910 represents a large amount of work and a small amount of progress—a record with which medical investigators are thoroughly familiar. About two hundred and fifty articles have been written on the Sydenham type alone; and, though only very few ideas have been advanced, these have brought forth such quantities of arguments for and against, proving and disproving, that the lack of results has by no means brought about a corresponding lack of literature. Consequently, a review which presents these few debated views on chorea and its treatment, omitting many of the pros and cons, would come nearer to meeting present indications than would an exhaustive study of all that has been written in the past decade.

That the disease occurs usually between the ages of five and fifteen, that it is more frequently met with in female children, that more cases occur in the Spring, that it is rare in negroes, all seem to be fairly well settled etiologic points. Concerning heredity, the fact that the form of chorea in which heredity plays an important part (Huntington's) is manifested in later life and gives a bad prognosis, and that the form in which heredity is unimportant is manifested in early life and gives a good prognosis, has called forth some comment.

Following a report of chorea occurring in seven members of the same family, the family history being negative for rheumatism, Burr[1] says, of chorea minor, that there is something which in very rare instances continues to act in families over several generations and shows itself by the occurrence of St. Vitus's dance, and that in such cases the disease may be regarded as hereditary. In the majority of children such an influence is absent, and heredity plays no part.

Pregnancy, according to McCarthy,[2] is one of the most important, if not the most important factor in the production of chorea in adult life. Evidence is lacking to show that this factor increases the susceptibility of the offspring.

A great many observers have stressed the importance of psychic causes in the production of chorea. To cite a few of the most recent opinon on this point—Griffith[3] says: "The direct effect of psychic causes is very decided. Often chorea develops promptly after such influences as fright, sudden grief, fear, and the like. . . . Imitation is an occasional psychic factor."

Discussing a paper by Strauss, Haberman[4] mentioned that many cases had come to Starr's clinic which should be classed as psychic chorea and which were cured by hypnosis.

With regard to the neglected subject of recurrences, Tilney[5] remarks: "So many times we get these cases well, then they go back to their homes and, later, are either brought to us or come with a recurrence. . . . There is a possibility that something in the home environment, the social environment, is important."

Local increases in prevalence of the disease have been noted, in rare instances amounting almost to epidemics. Opinions differ as to whether these outbreaks are of psychic or bacterial origin. The recent development of the latter theory will be considered later.

Pathogenesis of the Disease

It was not until 1884 that the bacteriology of the Streptococcus was put upon a scientific basis by the work of Fehleisen and Rosenbach. As early as 1889, Wassermann and Westphal suggested that the Streptococcus was the etiologic factor in chorea. The more recent bacteriological discussion of chorea has for the most part centered on the ability or inability of observers to isolate some form of this organism from the blood or spinal liquid or brain of cases of chorea.

Gordon,[6] in 1910, considering the evidence then at hand, came to the conclusion that chorea is an infectious disease, though he did not make a definite statement as to the exact nature of the organism involved.

An excellent review of the bacteriology of chorea is presented by Quigley.[7] He notes that many investigators have obtained bacteria in blood cultures in chorea before and after death, but that in a large number of these cases rheumatic fever or acute cardiac involvement was associated. Certainly but few attempts have been made to select uncomplicated cases of chorea for bacteriological study.

Among several observers quoted as failing to find any bacteria as a result of their studies, Quigley mentions Bartley,[8] Koplik,[9] Morse and Floyd[10] and others. He also mentions the researches of Poynton and Payne, whose work has caused so much comment that we shall consider it further. In their book entitled "Researches on Rheumatism," published in 1914, these authors[11] say, 'Chorea, one of the most remarkable of all the clinical phenomena, becomes at least more comprehensible when we find that in the same patient a micrococcus isolated from an acute rheumatic pericarditis may also be discovered in the pia mater and brain; and further that, when inoculated intravenously into animals, it may also be found in these situations producing irregular involuntary movements by virtue of tissue changes that result."

They regard chorea in the rheumatic as a symptom of rheumatic infection, due to the Diplococcus rheumaticus which they have described.[12] Prior to 1910, and many

1. Burr, Charles W.: Heredity in St. Vitus Dance, Jour. Nerv. and Ment. Dis., 1917, xlv, 237.
2. Osler and McCrae: Mod. Med., iv, 77.
3. Griffith, J. P. C.: The Diseases of Infants and Children, p. 260. W. B. Saunders Co., 1919.
4. Haberman, J. V.: Present Conception of Chorea, Arch. Pediat., 1918, p. 134.
5. Tilney, F.: Neur. Bull., January, 1919, p. 10.
6. Gordon: Jour. Am. Med. Assn., 1910, p. 1198.
7. Quigley: Jour. Infect. Dis., 1918, March, p. 198.
8. Bartley: Arch. Pediat., 1915, xxxii, 135.
9. Koplik: Ibid, p. 561.
10. Morse and Floyd: Am. Jour. Dis. Child., 1916, xxii, 61.
11. Poynton & Payne: Researches on Rheumatism, 1914, p. 3.
12. Poynton & Payne: Ibid, p. 561.

writers later have called attention to the association of chorea and rheumatism. Kerley,[13] for instance, states that more than 50 per cent of his cases have been rheumatic at some time or other; and that this figure would be raised to 80 per cent if the family history were to be taken into account.

Holt and Howland[14] say that there is a very close connection between chorea and rheumatism, adding that there are other cases in which the rheumatic element cannot be found.

Griffith[15] believes that there is much to support the theory of infection, but maintains that definite proof that rheumatism itself is due to a microorganism is still lacking. This brings us back to the fact that the claims made for their Diplococcus by Poynton and Payne need only consistent verification by other workers to be accepted. To date this verification is still lacking. Again, the figures on relationship between rheumatism and chorea depend largely upon what is meant by the term rheumatism. The more inclusive the definition, *i. e.*, including afebrile "growing pains," the greater will be the evidence of relationship.

History of Previous Infections

In an article on the autoserum treatment of chorea, Brown, Smith, and Phillips[16] say: "There are many who believe that chorea is always a manifestation of infection, that rheumatic fever is the commonest infection which produces the manfestations; but that other infections may sometimes produce the disease. This view would explain the cases which have occasionally been observed to follow such other infections as scarlet fever. It is interesting to note that the other diseases with which chorea has been associated are conditions in which Streptococci are frequently found." They quote Loubet's opinion that the lesion is a mild encephalitis caused by the toxin absorbed from an infection.

In a study of 300 cases of chorea, Fraser[17] obtained a history of previous rheumatism in 53 per cent. There were 115 patients who had never had rheumatism, and of these 25 per cent developed it within six years. In Fraser's opinion chorea is merely a cerebral manifestation of rheumatism.

In 1916 Abt and Levinson[18] reported a series of 226 cases. They assert their belief in the relationship of chorea and rheumatism; but this particular series did not confirm their belief. Moreover, tonsillitis or other focal infection did not prove to be a prominent factor. Thirty-five recurrences were noted; one patient had four, four had three, and twenty had two recurrences.

There is, of course, no lack of literature incriminating "septic foci," such as the teeth and tonsils, in the causation of chorea. Brown, Smith, and Phillips[16] say that these foci have been in many instances the undoubted source of the infection, but that the eradication of the foci often fails to effect a cure of the chorea. Three cases reported by Daniel and Lambright[19] all showed marked improvement after tonsillectomy and dental care.

Tarr,[20] on the other hand, remarks that although hundreds of cultures have been taken from the blood, teeth, and tonsils in patients with chorea, nothing definite has been proved. Abt and Levinson[18] do not consider tonsillitis an important etiologic factor. King,[21] however, feels so strongly on the subject that in an article on "The Duty of the State to the Choreic Child" he urges that, inasmuch as most municipalities have school inspection, it should be their duty to warn parents of children whose tonsils and teeth are diseased of the liability to chorea and the possibility of endocarditis. The state, he says, should insist that all infections should be properly treated.

It is clear from the above that "focal infections" offer ample forensic opportunities to students of chorea as well as to those of other diseases.

Cultures from Spinal Liquid

The twenty-one cases carefully selected and studied by Quigley[7] should be considered in the light of his findings on examination of the spinal liquid in these cases. Such a study is particularly desirable in order to take a rational attitude toward the various intraspinal treatments to be discussed later. Ten of his cases yielded positive cultures from both the blood and spinal liquid, and fourteen in either one or the other. Six of the bacterial strains isolated from the tonsil, eight from the spinal liquid, and nine from the blood, were identical in their morphological and cultural characteristics. The organisms were short-chain Streptococci, two strains of which produced green and were apparently the same as the two isolated from a large series by La Fetra.[22] Of his organism Quigley says that it resembles the Streptococci, "especially the Streptococci or Diplococci frequently found in rheumatic fever and endocarditis,"—which sounds like a tentative agreement with the findings of Poynton and Payne. With these bacteriologic results we should expect to find cellular and chemical changes in the spinal liquid; but the cell counts and globulin tests in these cases gave quite negative results. The author is led to conclude that there are no changes in the meninges in chorea, as a rule. Leopold and Bernhard,[23] studying the chemistry of the spinal liquid of twenty-one cases of chorea in children, found no essential deviation from the normal. Richardière *et al.* reported lymphocytosis.[24]

Of the organisms other than the Streptococcus which have been held to be the cause of chorea, the only one which has been discussed at great length is the Treponema Pallida. It is noteworthy that a relationship between syphilis and chorea was not suspected until 1912, when both salvarsan and the Wassermann reaction had worked their way to general use and favor. The chief exponent of syphilis as the causative agent in chorea was Milian,[25] whose first paper appeared in 1912. At intervals since then this author has published numerous case records in support of his position. It was the success of arsenic in the treatment of both diseases that first led Milian to suspect the luetic nature of chorea. Arsenic has been used in the treatment of chorea since 1780 (Alexander). Salvarsan appeared in 1910; and within a year it was being used successfully in chorea by v. Bokay.[26]

Milian has apparently put all his emphasis on the therapeutic test. In 1919[27] he reported consistent success from

13. Kerley: Practice of Pediatrics, 1918.
14. Holt and Howland: Diseases of Infancy and Childhood, Ed. 7, p. 694.
15. Griffith, J. P. C.: Diseases of Infants and Children, W. B. Saunders Co., 1919.
16. Brown, Smith and Phillips: Auto-Serum Treatment of Chorea, Brit. Jour. Child. Dis., 1919, xvi, p. 8.
17. Fraser: Practitioner, London, 1912, xlii, 461.
18. Abt and Levinson: Jour. Am. Med. Assn., 1916, Nov. 4.
19. Daniel and Lambright: Sydenham's Chorea, Ohio State Med. Jour., 1917, xiii, 243.
20. Tarr, E. M.: Auto-Serum Treatment of Chorea, Northwest Med., 1917, xvi, 308.
21. King, C. B.: Choreic Child, Illinois Med. Jour., 1917, xxxii, 253.
22. La Fetra, L. E.: Arch. Pediat., 1915, xxxii, 220.
23. Leopold, J. S., and Bernhard, A.: Chemistry of Spinal Fluid, Am. Jour. Dis. Child., 1917, xiii, 34.
24. Richardiere, Lemaire, et Sourdel: Ann. de méd. et de chir. inf., xv, 276.
25. Milian: La Nature Syphilitique de la choree de Sydenham, Bull. et mem. Soc. méd. d. hôp. de Paris, 21S, 955.
26. Bokay, V.: Erfolgreiche Behandlung von Chorea Minor mit Salvarsan, Deutsch. med. Wchnschr., 1911, p. 111.
27. Milian: Choree Syphilitique gueri par le traitement mercuriel, Bull. de la soc. franc de dermat. et de syphilogr., 1919, p. 37.

the use of mercury. In one case this was followed by a typical Herxheimer reaction, which in his opinion was diagnostic of syphilis.

The work of many other observers has shown quite conclusively that the relation between chorea and syphilis is merely coincidental. Even Milian, in the paper just quoted, said that he does not claim that all cases of chorea are of syphilitic origin, adding that all the subacute infections are capable of producing choreiform states. He insists, however, that specific treatment be tried in all cases.

Quigley,[7] Abt and Levinson,[18] and, particularly, Koplik,[28] have come out strongly against the luetic etiology. Making a special study of this phase of the subject, Koplik observed eleven cases of chorea in children from six to thirteen years old. He found cardiac involvement in five, rheumatic history in three, and evidence of lues in none. He has found no evidence that any of his cases of hereditary lues are particularly susceptible to chorea; and, finally, he says salvarsan does not cause such striking improvement as to warrant a continuance of its use.

Studies in the anatomical pathology of uncomplicated cases of chorea minor have produced no definite results. The emboli reported by some authors McCarthy[2] believes to be due to the complicating endocarditis in practically every case. Poynton and Payne[11] described a case with engorgement of the cerebral vessels, subpial hemorrhages, thrombosis, perivascular infiltration, and edema; also, the Poynton and Payne Diplococci. This case, however, was complicated by pericarditis and endocarditis.

These authors have advanced the theory that in chorea the nerve cells undergo hyperactivity, followed by weakening. With this theory Mayer and Mayer[29] agree.

Hematology in Chorea

With regard to hematology, eosinophilia has been repeatedly found. Leopold[30] studied twenty cases, with distinct eosinophilia in ten. There were nine cases with recurring attacks, and eosinophilia was present in six of the nine. He quotes Brown[31] and Cabot[32] as noting eosinophilia in uncomplicated chorea.

Among the complications more recently noted are gangrene of the fingers (Chodak[33]), peliosis rheumatica,[34] and muscular weakness. The last named should perhaps be considered an essential part of the disease rather than a complication, judging from the electro-myographic study of chorea made by Cobb.[35] He concluded that in chorea the inability of the muscles to maintain voluntary contraction is clearly shown in the electromyograms; and that weakness of muscular contraction is shown electromyographically by the lessened electrical discharge.

A Survey of Clinical Signs

As Langley Porter[36] says, "the clinical picture of chorea has never been more succinctly drawn than it was by Sydenham."

Two signs have recently been described which might be of aid in clearing up doubtful cases: namely, the voice sign of Swift[37] and the "handshake sign" of Heiman.[38] The former is elicited by having the patient pronounce "a" as in "are," making the sound steadily and evenly for ten or fifteen seconds. Changes in pitch and intensity are characteristic of the typical choreic voice.

To elicit the latter sign, the palm of the patient's left hand is placed upon the palmar surface of the observer's right hand. Then the thumb of the patient is embraced by the middle and index fingers of the physician, and the other four fingers firmly grasped by the remaining fingers of the examiner. The right hand of the patient is similarly grasped by the left hand of the physician. The attention of the patient is then invited by asking him a simple question. If the patient has chorea the twitchings of the hands will be distinctly augmented each time the attention is engaged. Heiman says this sign is often present when the characteristic twitchings are absent.

Therapeutic Measures Employed

Like so many other self-limited diseases about which little is known, chorea has a long list of therapeutic measures to its credit, each with a gratifying record of good results. Mental and physical rest, with particular attention to the exclusion of exciting influences, proper care, diet, nursing, and isolation, are standard methods of treatment in this disease, whose value is beyond dispute.

Arsenic, as we have seen, has been in use long enough to have attained a high degree of respectability. The last ten years have witnessed radical changes in the methods of its administration. In 1910 Hassin and Hershfield[39] modified the enormous doses of the drug given by Comby and Filatov, though continuing to give it in the form used by these authors, namely, as 1:1,000 solution of arsenious acid. McCarthy[2] advises against the use of arsenic in large doses, and says it should never be given until the physiologic limit is reached. He adds that salvarsan, intravenously, intramuscularly, and intraspinally, has given uniformly good results.

Bastedo[40] also opposes pushing arsenic to the "toxic limit," and recommends salvarsan when other means fail. Abt and Levinson[18] were not enthusiastic about their results with arsenic.

Sedatives, of course, occupy a prominent place in the treatment of chorea. Bastedo, who used bromides in doses ranging from thirty to 180 grains a day, got only mild suppression of the nervous manifestations. He calls attention to the fact that in chorea the trouble is not overtone but undertone, which is interesting in comparison with Cobb's results previously cited. He thinks that some other method which would not augment the lowering of muscle tone might be preferable to the use of bromides. This writer also opposes the use of chloral except in very mild doses,—mentioning one patient who got 120 grains a day without relief of choreiform disturbance—except death which came not long afterward.

Magnesium sulphate hypodermatically has received favorable mention by Heiman (1916), Acuna, Bastedo (1919), Cavalieri and others.

In 1910 Roden[41] obtained excellent results by treating a girl of ten with thyroid extract,—after arsenic, potassium iodid, potassium bromid, and brine baths proved unavailing. Goodman[42] quotes Hanneborg's success with 69 cases treated by thyroid extract. Sajous[43] quotes Browning as having obtained good results by use of pituitrin in cases of chorea associated with stunted growth.

28. Koplik: Arch. Pediat., 1915, August, p. 561.
29. Mayer and Mayer: International Clinics, 1, 26th Series, p. 1.
30. Leopold, J. S.: New York Med. Jour., 1914, p. 224.
31. Brown: Maryland Med. Jour., 1902, p. 303.
32. Cabot: Clinical Examination of the Blood, 1904
33. Chodak: Brit. Jour. Child. Dis., xvi, 148.
34. Chodak, Arcelli: 1912.
35. Cobb, S.: Electromyographic Study of Chorea, Bull. Johns Hopkins Hosp., 1919, xxx, 35.
36. Langley Porter: Am. Jour. Dis. Child., 1918, p. 109.
37. Swift: Am. Dis. Child., viii, 247, 320.
38. Heiman: Arch. Diag., vii, 148, 200.
39. Hassin and Hershfield: Med. Rec., New York, 1910, July 2, p. 15.
40. Bastedo, W. A.: Discussion of Strong's Paper on Chorea, Neurol. Bull., 1919, p. 1.
41. Roden: Lancet, London, 1910, p. 1276.
42. Goodman Discussion of Dr. Strong's Paper on Chorea, Neurol. Bull., January, 1919.
43. Sajous: Internal Secretions, 1918.

In view of the rheumatic tendencies and antecedents of choreic patients, the salicylates have naturally played an important part in treatment. Here, too, different men have obtained different results.

Among the more unusual forms of treatment have been: rectal administration of salvarsan by Weil, Mouriquand, and Goyet; chloretone by Wynters; rheumatism phylacogen by Block; adrenalin by Sergent and Besset; cholesterin subcutaneously by Margarot; port wine by Ewart; and cimicifuga by Hare.

There has been considerable discussion as to the best form of administering hydrotherapy. The majority prefer hot baths for a long period of time. Collins and Gliddon[44] used wet blankets at 65° F. for one hour daily, together with daily administration of saline purges and Bulgarian milk. They reported absolute cures in 66 per cent, and improvement in 21 per cent. There seems to be no disagreement on the point that hydrotherapy in some form is of distinct benefit.

Methods of Intraspinal Treatment

Of late years therapeutic discussion has centered round the various methods of intraspinal treatment. Passini[45] claims good results from simple lumbar puncture. This Goodman[42] says has been tried and found unsuccessful. Others have thought better of it, but the results have not been striking.

About 1911 the intraspinal injection of magnesium sulphate had great popularity among Italian investigators, a procedure which has been found to be attended by considerable danger. Buchut and Devic[46] in 1912 reported death in one case following this treatment.

The form of intraspinal treatment which has aroused most discussion is that of Goodman.[47] In 1912 two of his cases of chorea developed miliary tuberculosis and died. At autopsy it was found that the tubercles were restricted mostly to the central nervous system. He felt that previous methods of treatment had failed because they had failed to reach the seat of the trouble. Arguing that chorea is due to infection, Goodman reasoned that the antibodies which must be in the blood were excluded from the cerebrospinal liquid by the choroidal plexuses. The injection of serum into the canal in his opinion makes the walls of the plexuses more permeable.

The technic consists first in suspending all drug therapy —especially salicylates and sedatives—for over five days; and in ruling out syphilis and tuberculosis. Then under strict asepsis blood is withdrawn from the arm, the serum separated off by clotting, and the serum then injected into the spinal canal. It is not considered necessary to inactivate the serum, or to withdraw a corresponding amount of spinal liquid. The patient is kept in bed for a week afterward.

Goodman reports twenty-nine out of thirty cases cured or markedly improved within three weeks. Reporting results in forty-four cases, Brown, Smith, and Phillips[48] say that in their hands the autoserum therapy has been productive of infinitely more satisfactory results than any other,—a cure of 77 per cent of the cases having been effected within three weeks. There were no recurrences in a period of over a year and a half.

Diner[48] reported three more cures, in cases who were kept in bed for a long period of time prior to treatment.

Tarr[39] reports fourteen cases, three of which were cured and two improved. He thinks the strongest argument in favor of the treatment is that acute cases can be cured before the cardiac conditions develop.

Bastedo and Tilney[40] have cited cases where the Goodman treatment has failed. Chapin and Pisek[49] say that the treatment is "questionable." Griffith[3] says his results in the few cases tried have not been satisfactory. Koplik[14] says, "It is not as yet a perfected therapy."

Langley Porter[36] recommends the intrathecal injection of normal horse serum instead of the autoserum. Citing the work of Mott, Leri, Orofici, Flexner, and Mehrtens, he says it is well recognized that the injection of foreign protein does break down the defensive power of the choroid and allow substances which ordinarily do not pass to move from the blood into the central nervous system. He points to the increased cell count after the injection of normal horse serum (sterile meningitis). He reports seven cases with marked improvement. Goodman[49] commenting on this report, says the results are "very poor."

The Discussion Summarized

The contributions of the past decade to the literature on chorea minor consist so largely of arguments and theories, and contain so many widely different forms of treatment, that our lack of knowledge of chorea is only made more manifest. We know that it is an acute disease of childhood, due in all probability to some infectious agent, corresponding clinically to the description of Sydenham; that rest, isolation, proper hygiene, and hydrotherapy are of great benefit in treating the disease; that arsenic and tonic may be of slight assistance. More than this it is safe to say we do not know.

GOITER SURVEY IN OHIO

In the three communities of Akron, Cleveland, and Warren, O., as reported by David Martin in the *Ohio State Medical Journal*, the percentage relations of school children with normal and enlarged thyroids were found to be as follows: (1) *Girls:* 9,679 (examinations extending through three years) were examined in Akron—51.36 per cent had normal thyroids and 48.64 per cent had enlarged thyroids; 406 were examined in Cleveland—62.31 per cent had normal thyroids and 37.69 per cent had enlarged thyroids; 925 were examined in Warren—75.57 per cent had normal thyroids and 24.43 per cent had enlarged thyroids. (2) *Boys:* 273 were examined in Cleveland—81.68 per cent had normal thyroids and 18.32 per cent had enlarged thyroids; 911 were examined in Warren—90.45 per cent had normal thyroids and 9.55 per cent had enlarged thyroids. *A comparison of the incidence of thyroid enlargement in relation to sex shows that in these groups of school children it is a little more than twice as frequent in girls.* The general statements that sex makes no difference in the incidence of thyroid enlargements before puberty and that during and after puberty it becomes five or six times more frequent in girls do not conflict with these figures, as the pupils examined were below the age of puberty.

EXCHANGE STUDENTS FROM BELGIUM

Twenty-two Belgian graduate students recently arrived in the United States to enter various American universities under a fellowship exchange plan instituted by the educational foundation of the Commission for the Relief of Belgium. A number of these Belgian students are graduates in medicine and will continue their medical studies in this country.

44. Collins and Glidon: Jour. Am. Med. Assn., 1913, June.
45. Passini: Wien. klin. wchnschr., 1914, 1363.
46. Buchut and Devic: Gaz. d. mal. infant., 1911, p. 149.
47. Goodman: Arch. Pediat., 1916, p. 649.
48. Diner, J.: Med. Times, New York, 1917, July, p. 197.
49. Chapin, H. D., and Pisek, G. R.: Diseases of Children, 1919, p. 474.

ANATOMICAL AND ANTHROPOLOGICAL ASSOCIATION OF CHINA

By E. V. COWDRY, Ph.D., Director, Department of Anatomy, Peking Union Medical College, Peking, China

CHINA is a vast country, as yet undeveloped from the standpoint of medical education, in which professional anatomists are spread over a wide area and are more or less isolated from their fellows. An urgent need for centralization and coordination of effort has long been felt. With the close of the war a period of great activity and of rapid development may be expected, during which the services that an active organization can perform will be many. In the general improvement of conditions of teaching and research and in the securing of favorable legislation regarding dissection, an association can make some headway where an individual would be greatly handicapped. Anatomists in China are also confronted with many fascinating problems, often of an anthropological nature, which necessitate cooperation in the gathering of specimens and data. Finally, it has been repeatedly demonstrated in Europe and America that the formation of an anatomical association constitutes an essential step in national organization which exercises a beneficial influence upon medical education as a whole.

Interest was therefore aroused in the formation of an association through the publication of notices and editorials in the *China Medical Journal;* and the Medical Congress, which was held in Peking during the Chinese New Year holidays from February 21 to 28, inclusive, and which attracted physicians and investigators from far and wide, offered a unique opportunity for taking definite action. The papers of anatomical and anthropological nature were gathered together and presented in the anatomical laboratory and an association was formed at the afternoon meeting on February 26, on the following basis:

Constitution

(1) The Association shall be called the Anatomical and Anthropological Association of China.

(2) The object of the Association shall be to advance the sciences of anatomy and anthropology in the far East, in the broadest sense, especially in the coordination and centralization of activities, in the improvement of conditions for teaching and research, and in the financing of special investigations and expeditions.

(3) All persons who are interested in the objects of the Association shall be eligible for membership.

(4) The names of candidates for membership shall be submitted to the Secretary-Treasurer at least one month before the meeting at which they come up for election.

(5) Each member shall pay an initiation fee of two dollars to the Secretary-Treasurer.

(6) Annual dues shall be determined at the first annual meeting.

(7) Members duly elected shall be able to assume life membership by the payment of fifty dollars, it being understood that the Association does not assume any obligations with respect to publications.

(8) Upon the recommendation of the Council persons who further the interests of the Association either financially or in other ways shall be elected patrons of the Association.

(9) The officers of the Association shall consist of a president, elected annually; and a secretary-treasurer and twelve councilors, elected to serve for a period of two years.

(10) The Council shall meet at the call of the President, in the interval between annual meetings for the consideration of expenditures, of recommendations for membership, and for the arrangement of programs for meetings. The Council shall also deal with all other matters of concern to the Association and make recommendations to it for decision.

(11) Annual meetings of the Association shall be held in close affiliation with the China Medical Missionary Association.

(12) Special meetings shall be held at the discretion of the President and at least three members of the council.

(13) For the election of members, changes in constitution, extraordinary expenditures, and dropping of members, a three-fourths vote of those present will be required; for all matters of minor import, a simple majority vote will be sufficient.

The charter membership of the Association includes Aleš Hrdlička, United States National Museum, Washington, D. C., as honorary member, and the following:

Reports on Researches

(1) *Relations of Anthropology to Medicine.*—Aleš Hrdlička, United States National Museum, Washington, D. C.

(2) *The Attitude of the Chinese Government Towards Dissection.*—S. P. Chen, official representative of the Board of Interior.

(3) *The Jewish Colony at Keifengfu.*—Dr. C. D. Tenney, American Legation, Peking.

(4) *Stone Implements of Neolithic Type in China.*—J. G. Andersson, Peking.

(5) *Head Flattening.*—E. T. C. Werner, Peking.

(6) *Anthropologisches Studium Ueber Unterextremitaten der Chinesen.*—Kotaro Shiino, Department of Anatomy, South Manchuria Railway Medical School, Mukden.

(7) *Observations made at the Second Chinese Government Animal Experimental Station.*—Chou Wei-lien, Director

(8) *Methods of Anthropometry.*—Aleš Hrdlička, United States National Museum, Washington, D. C.

(9) *Ueber die Panethschen Zellen des Duodenums von Schweinen.*—E. H. Tang, director, Government Medical School, Peking.

(10) *A Review of Chinese Anatomy from the Period of Huangti (Yellow Emperor, 2697 B. C.).*—E. T. Hsiao, Department of Anatomy, Peking Union Medical College.

First photograph of the Anatomical and Anthropological Association of China.

HEALTH IN INDUSTRY

Hygiene, Sanitation, Medical and Hospital Service in Relation to Industry

OTTO P. GEIER, M. D., *Editor*

TYPES OF PHYSICIANS CONTACTING WITH INDUSTRY

THE more or less nebulous notions which are generally current in regard to what are the tenets of industrial medicine as a specialty were brought out recently in the criticism of a committee report which was made to the Cincinnati Academy of Medicine on this subject, the discussion resulting in a definition of industrial medicine as a specialty and a recapitulation of the several types of industrial medical practice that have been developed which it appears worth while to give out. The scope of industrial medical practice, its importance, and its chief avenues of advancement may well be recalled in the following.

(1) *Definition of Industrial Medicine.*—Industrial medicine is the knowledge of medicine, surgery, oral hygiene, sanitation, hygiene, safety, economics, and psychology, daily promoted by and intensively applied to groups of employes, for the purpose of preventing or shortening the disability due to illness and accidents, and with the object of adjusting unhealthful working and living conditions, and of correcting unhealthful attitudes towards the conditions that surround the industrial job, thereby increasing individual efficiency and mass production.

(2) *Functions Belonging to Industrial Medicine.*—(a) Sanitation,—that is, securing for the worker clean working conditions; (b) Hygiene, including the education of the worker in personal hygiene; (c) Safety—mechanically safeguarding machinery and educating the worker to safe practices; and (d) Medical supervision, to include physical examination at time of employment and thorough periodic re-examination; diagnosis of disease and discovery of many conditions in incipiency, due to the constant accessibility of physicians; health education and treatment of individuals while employed; teaching the worker wider use of the physician for himself and family; securing to him the advice and treatment of specialists; state compensation and sickness insurance; plant mutual aids; institution of proper records for the purposes of follow-up.

(3) *Results of Industrial Medicine.*—(a) Prevention of accidents. (b) Prompt and proper surgical attention to the injured. (c) Prevention of disease and adequate treatment therefor. (d) Education of the worker to use physicians, dentists, and to refrain from patent medicine, and other harmful practices. (e) The physical efficiency of the worker increased, along with his income, thereby reducing poverty and dependency and increasing production.

(4) *Conditions of Such Practice in Industry.*—There are many types of men who think they qualify as industrial physicians.

(a) The first type is the man who merely, incidental to his private practice, takes care of a number of victims of industrial accidents. This man is surely not an industrial physician.

(b) There is a second type of doctors who are setting up emergency stations, where they take care of the accidents that occur in a great number of factories in the surrounding territory, but who do not go into the factories to study the working conditions, who know nothing of the safeguards that they should have, and do not have any interest in promoting the prevention of further occurrence of the same accidents.

(c) The third class is the physician who perhaps gives a definite portion of the day to work within the plant, and yet who makes his major income outside of the plant. This man necessarily has his heart and his chief interest in his private practice and does not qualify fully as an industrial physician.

(d) The fourth type is represented by a physician or group of physicians who undertake to serve a certain number of plants with the needed surgical attention, and who also agree to give some supervision to the matter of general plant sanitation, make physical examinations when asked for, and attend certain workers who report themselves sick when he visits the plant.

(e) In the fifth class we come to the physician who really begins to qualify as an industrial physician; he is that man who gives up his private practice to enter industry for the purpose of using his knowledge of medicine and surgery to serve the worker and the management. Here again, just as in private practice, the man is going to be a relative failure or a great success, depending upon his ability and upon the extent to which he now qualifies as a specialist in this new subject. He may be the type of man that is satisfied merely to dress injuries and simply to prescribe for men who appear in his office; or he may make a thorough study of the plant conditions, the sanitation, safety, etc., for the purpose of bringing all of his science to bear upon each individual worker, and the mass of workers, for the purpose of creating a better shop morale, raising their level of efficiency, and promoting their health, which will result in increased output. This last is the true industrial physician who really interprets the definition of industrial medicine, which states that it "is the knowledge of medicine, surgery, oral hygiene, sanitation, hygiene, safety, economics, and psychology, daily promoted and intensively applied to groups of employees, for the purpose of preventing or shortening the disability due to illness and accidents and for the purpose of adjusting unhealthful working and living conditions, of correcting unhealthy attitudes towards the conditions that surround the industrial job, as well as the community life, thereby increasing individual efficiency and mass production." EDITOR.

FUTURE OF INDUSTRIAL MEDICINE AS A LABOR POLICY

By OTTO P. GEIER, M.D., President, American Association of Industrial Physicians and Surgeons, Cincinnati, Ohio

If one would adequately discuss the subject, it would be necessary to define at least the following problems: (1) What is a labor policy and how is one developed? (2) What is the economic and social value of a labor policy in production? (3) To what extent has industry adopted such policies? (4) What is industrial medicine? (5) Does industrial medicine vitalize the development of an efficient labor policy and thus assure its future? The scope of the subject is tremendous and cannot be confined within the period allowed, so we may but undertake to discuss briefly the five queries in the outline.

Universal unrest, "verging constantly toward conflict," characterizes the complex and as yet unruled world of industry. The rapid change from the harmonious adjustment of a society consisting of small, self-centered and self-supporting units to the economic and social collisions incident to a society organized on the cosmopolitan interdependence of industrialism calls for a new ethics. A better order can come only by way of the mutual comprehension which evolves out of frequent and familiar contacts. So far, there has been applied to the complex subject of better relations little inquiry, and less logic and method.

Out of this situation arises the opportunity of the industrial physician to "bring together all the major issues of the welfare of the men" and to bring to bear on them the proper measures for their early and satisfactory solution.

When we try to measure the responsibility of industry toward world affairs we recognize that every conscientious person today is giving more serious thought to political and social questions. Never before have economic and social problems carried such national and international importance; never has the world been in such a state of flux; never before have the emotions and aspirations of the various peoples that comprise mankind been so near the boiling point; never before has universal unrest, the new *weltgeist*, shaken the foundations of so many governments. One by one have all our well rooted ideas as to the permanency of many institutions, long believed unshakable, been so forcibly cast into the discard. Nations, political systems, century old economic and political theories and practices have gradually disintegrated before this universal unrest, leaving the world face to face with the necessity of beginning anew to reconstruct our whole thinking processes so that the semblance of order may come out of the present chaos.

There exists a smug theory that every great crisis is met by the springing forth of some master minds to grapple successfully with new situations. If such supermen exist today, they have yet to make themselves known, or perchance their voices are unheard in the turmoil of the mob. If ever we needed statesmanship, it is now, and yet as we daily read the cabled news, we get the impression that nations at large are adrift.

Looming up largely in this international unrest and disorder is an industrial strife in proportions beyond imagination. Just to what extent is industry, with its rather general lack of a labor policy, responsible? Strikes, lock-outs, seizure of plants by the workers, are but signs of a general discontent with the present order of things, which has resulted in general lowering of output everywhere. And this at a time, when mass production is needed, as never before, to rehabilitate the war stricken countries, to feed and clothe millions now underfed, stricken with disease, and almost naked.

This unfortunate outlook is rapidly brought before our minds not to discourage but to stimulate, not to suggest that we be on the lookout for the superman to lead us out of our difficulties, but rather to urge the necessity of each doing his part, each playing his well studied rôle wisely, to the end that greater sanity and justice again prevail. Governmental regulation and legislation will not prove a cure. World peace and progress will evolve finally of individual right thinking and doing, rather than from old time statesmanship and diplomacy, and of no phase of the world's disorder is this more true than of industry.

It is no pleasant admission, but the leaders of industry have been slow to realize their individual responsibility not only to their own workers, but to the broad social and economic questions of the day. Too many industries have been run by single track minds, conscious only of the possible profits to be made. Such minds give no thought to human factors of management; such minds do not formulate a labor policy. Only when strikes impend do they give heed to labor relations, and then only to run to cover with other employers for purposes of defense. In brief, these types of business heads lack a constructive policy for industrial peace, and are therefore only blindly prepared for labor's method of warfare.

Labor and the Gang Spirit

If, in the past few years, labor has seemingly grasped too much for the general good, we can rightfully blame industry for failing to do its share in keeping the pendulum from swinging too widely. All men are bound to seek leadership. We all respond to the gang spirit from youth on. Organized labor in large part has supplied a certain kind of leadership, and, right or wrong in its tenets, has satisfied the human longing *to belong*, to have something to say, *to do other than merely to earn*, to be recognized as an entity, to find some form of self-expression. In times of strike and industrial strife the worried employer makes a belated effort to assume some leadership, only to find that leadership cannot be superimposed on the group or substituted for that which already exists. Industry does not attempt to build up an effective production organization over night, nor stand ready to change its managers for new ones on short notice. Even more slowly and less kindly do employees take to radical changes in their leadership.

If employers at large are dissatisfied with the character of leadership in the ranks of labor, if they would have it less radical, more constructive, they will need to help create a feeling among the average workman that this present leadership is not safe for the general good. To do so the employer will have to become as astute in his appreciation of the psychology of the employee as is the

*Read before the joint session of the American Association of Industrial Physicians and Surgeons, and the Health Section of the National Safety Council, Milwaukee, Wis., September 29, 1920.

labor leader. To accomplish this difficult task he must first inform himself about the history of the labor movement, its purposes and promises, its methods and results; for then only will he be able to discern its strengths, its weaknesses, and failures, and hold them up to light. Even then he will have no audience to sway, no group to persuade, unless he has proved by past performances that he is just and fair in his dealings with his fellow men and deserving of their confidence and leadership. Primarily, then, the employer must have a labor policy, which is exactly what too few men at the head of industry now have. Too often a blind prejudice against all organized labor is substituted or mistaken for a labor policy.

The very definition of the word policy includes a thoughtful conclusion based on all obtainable facts. In the case of a labor policy the facts must include all the basic principles of social and economic justice that enter into wage relations, necessarily tempered by the varying attitudes of the respective employer and employees. In brief, we have here the most difficult complex study confronting any human being, one that is never static or complete, but one which needs always to be adjusted and brought up to the moment if it is to remain effective. Each separate industry, more or less affected by the processes and limitations that enter into the product, has its particular labor problems which further extend to this craft of which it is a part, and all these conditions are in turn definitely molded and influenced by the composite will and desire of the labor group and the community at large.

To have a labor policy therefore, that will stand the crucial test, the management must then be willing to put real brains, energy, and heart into the study of its own attitude and personnel, of its employees and their relations to other employees and employers, as well as to the community. Management must possess its soul with patience, with forebearance, for most slowly does this knowledge unfold itself. Much wisdom will come from broad reading, more from the practical results of other similar searchers after economic truths, but the most precise information will come out of the daily organized effort at better mutual relations. Nothing will avail unless there can be established much ordinary but useful human relations between the management and the group, and by this very measure will the effort be successful. The employer must learn to talk the language of the workmen, to anticipate their misunderstandings, gracefully to accept their early suspicions in the hope that through frequent contacts, through frank and painstaking exchange of ideas, the usual barriers will finally break down.

Inject Personality into Management

In a communication recently received from a successful manufacturer, several paragraphs occur which fit into this discussion. Part of his success undoubtedly has been his ability to inject his personality into management all down the line, which finds expression through a well organized personal service department.

He states: "Employers are rapidly learning that it is just as important to have a healthy, happy, well trained, smooth running labor force as it is to have a thoroughly planned, modern building, equipped with highly organized machines made of carefully selected material, honestly and conscientiously put together, each part in thorough alignment and running without friction. We find that a shop force, once made to understand the mutuality between employer and employee, responds to our leadership and cooperates with the management in working out the daily problems of increased production and lowered costs. Industry has discovered that the establishment of a broad labor policy, in all its ramifications, is an applied science, and not a commodity that can be bought and installed in a single day; that it is an important function in management, operating continuously during every working hour of every day in the year. Only out of such constant effort will there finally result a progressive, permanent labor policy. The greatest success will come if it is begun in a small, simple way, gradually gaining the confidence of the men, each succeeding step making for a better understanding."

He then further emphasizes these points by adding, "None of these things can be substituted for a fair wage, but paying the current rate of wage, as we pay the current price for material, is not sufficient. Labor policies cannot be acquired as readily as material. Workman cannot be graded by exact mechanical or physical analysis as is the case in the purchase of materials. We may employ standards of physical fitness, make use of past records of former employment, establish extensive record systems; but the human equation still remains and the treatment of the human material must differ greatly from the handling of other material."

Finally, this successful business man vitalizes our discussion of today when he says, "The individual who represents the management in his phase of production must approach his work not only with a thorough understanding of the fundamental economic basis on which the human relations department must rest, but he must have, in a very special degree, a sympathy for the innumerable difficulties with which the average workman is confronted, and lend thereto a spirit of helpfulness. Every vestige of paternalism must be eradicated in his daily contact with the men, where he must be unostentatious, evince sympathy and understanding, fair-mindedness, and justice. When management has inaugurated such a department under such wise leadership, the greatest step has been taken for the solution of the age-long 'controversy between capital and labor.' Natural contacts are developed. Each day will bring into the open, for prompt and wise settlement, the many minor differences which too frequently have been kept in the dark, where they have festered and spread their poison, later requiring major operations to effect a radical cure."

If we take these expressions as typical of the minds of the forward-looking leaders in industry, we are face to face with the necessity of promptly providing many highly capable, conscientious individuals to take part in the development of human relations—men who are particularly qualified by character and training to initiate this newer industrial gospel. We may immediately admit that all of these better relations are predicated most successfully upon the better physical and mental health of the individual workers. So it follows that right minded physicians of executive ability, economically and socially minded, may become the very cornerstone of personal service departments.

Physicians Mold Attitudes

Industry and society need today an ever increasing group of seriously minded well trained physicians and surgeons who realize the great social and economic contribution that they may make to industry and society by special study of their opportunities to serve both the employer and the employee. In conserving the body and mind of the worker, the industrial physician is able frequently not only to add to the earning capacity of the man, but also to change the worker's attitude towards his job. Incidentally, he educates the employer to the dollar and cents value of individual and community health.

If we but stop for a moment to consider the world wide attitude of the laity towards the medical profession in general, and particularly how the physician is accepted by the industrial worker, not only as a medical adviser, but as friend and counsellor, we may at once perceive how industry, in bringing this new personality into close contact with its workers, provides a point of sympathy and understanding which can be supplied so readily by

no one of the other functionary whether he be a highly trained employment manager, a social or welfare worker, or what not. When industry accepts this non-controvertible fact that in the physician and his old time relations with the patient it has a new and definite asset, then will progress in building up personal service departments be made more quickly.

Human Contacts in Clinic

Who dare deny for a moment that the contacts produced in an industrial clinic under the supervision of a high grade medical officer are the most natural in the world; that here human helpfulness may find its best expression, free from any paternalistic slant, provided a type of service for the worker otherwise unpurchasable, unsecurable? The employee can usually secure for himself almost all of the facilities—recreational or educational—which a well developed human relations department attempts to provide, but the medical guidance is a service in a class by itself.

In establishing a 100 per cent health department service, industry supplies a type of preventive medicine which was never before conceived by the medical profession, the benefits of which even the comfortably situated and well-to-do do not enjoy. Daily supervision of health, ready accessibility of the patient to the doctor, innumerable opportunities for observation of minor symptoms and conditions, finally build up an entirely new type of preventive medicine which is bound to reflect itself in a lowered sickness rate, and therefore in a lowered death rate.

The thousands upon thousands of contacts that are made each year with the men through the medical and service departments give the employees an appreciation of the purposes and difficulties of management, and on the other hand, give the management an insight into the personal problems that confront the men. It is when this clear understanding between the two is reached that management becomes fully successful, to the ultimate gain of both employer and employee.

If the physicians connected with industry are to establish a real place for themselves and the new specialty of industrial medicine, they must intensively apply themselves to the work before them. Mere finger wrapping and the giving of gunshot prescriptions or pills inside of a dispensary connected with industry does not qualify a man to state that he is practising industrial medicine. With such professional assistance industry only fools itself in the belief that its medical department is serving the workers. This type of work is worthless to industry and has furnished the labor agitator with ammunition with which to attack the meritorious system of physical examination and medical supervision.

That physician, however, who has the support of the management and who has a broad understanding of the problems of industrial relations, modern employment methods, safety and sanitary requirements of the plant, and who appreciates the relationship between these things and the wage loss due to accident and disease is in position to make a marked contribution to industry and therefore to society.

Adequate Pay for Service

This brings us, however, to challenge industry to exercise the same care in selection and show the same willingness to pay an adequate price for properly equipped physicians that they display when hiring other executives for the plant. A cheap doctor, like a cheap manager, spells disaster. Many good physicians are finding their opportunities to serve industry in a big way made impossible by being placed under control of some narrowgauged safety or employment man whose chief concern is the size of his pay roll. Good preventive health work costs money and, unless the plant physician can sell this idea direct to the management, and from that source receive encouragement for further effort, he will soon degenerate into the routine finger-wrapper and pill-vendor previously mentioned.

We submit, then, for final and thoughtful consideration:

(1) That production is fatally low.

(2) That unrest is universal.

(3) That industrial discontent is extensive.

(4) That general unrest and industrial discontent will be cured not by legislation, but chiefly by the collective result of intense individual effort, each employer working out the problems in his own plant.

(5) That the general lack of a labor policy has contributed not a little to these conditions.

(6) That the acquirement of an effective labor policy is a man-size job, extending over years.

(7) That a constructive policy will heavily stress the value of health in the worker.

(8) That physicians giving their whole thought and energies to industry are an important factor in labor relations.

(9) That industry's power for social and economic good or evil is unmeasurable. It can and must solve its problems of labor relations. It can and should set new standards of health control.

Society Organized About Industry

If industry knew how largely it dominates life at large; if it really sensed the tremendous responsibility it bears towards society; if it could be made to see how our whole commercial, social, and economic existence is finally and absolutely dependent upon its actions; if its leaders would realize that the force and character of industrial life pulsates throughout the community, making for good or bad citizenship, for unhappy, restricted existence or for healthy, contented, constructive living; if these leaders could know to what extent good human relations in one plant leavens and makes safer the body politic, then in truth would they wield that power more largely for the common good.

The power of kings is as nothing compared to the collective power of industry when working for society's welfare. Massed within its walls are great units of society whose quality of citizenship will finally be the measure of the success of democracy. The ultimate fruit of industry is not to be looked for in its products but its real result will ever be either a discontented, unhealthy, apathetic, thriftless community, or it will be an energetic, successful, growing community, vibrant with good health and happiness, producing most per hour of employment, and adding steadily to its wealth.

Which shall be the choice? Upon the answer depends the future place in history of our industrial national life.

PHYSICAL TESTS FOR AUTO DRIVERS

Health Commissioner Copeland has made public a letter recently written to Secretary of State Francis M. Hugo, in which he suggests that amendments be made to the sanitary code making it impossible for those with defective vision or hearing, or those addicted to narcotic drugs, to become chauffeurs in New York. Death rates from automobile accidents are higher each succeeding year and automobile traffic must be controlled till it is safe.

ECONOMY OF PROPER MEDICAL SERVICE*

By GEORGE A. KINGSTON, Commissioner, Ontario Workmen's Compensation Board, Toronto, Ont.

THE task of saying something on the economy of proper medical treatment in relation to compensation is approached with a good deal of hesitation because on such a subject one is sure to tramp on someone's toes. However, at whatever risk there may be in it, I will make a few suggestions.

One has only to stop and think that the question of medical service, an item which has to be considered by someone in every one of the forty-five odd thousand cases handled in our jurisdiction in a year, and the same of course in every State and Province, to realize how intimately associated is this problem of medical aid with that of Workmen's Compensation. Even a saving of five dollars per claim, if this could be effected by the exercise of a little greater care in medical treatment, would in the aggregate amount to an enormous sum.

Accidents Fall Into Categories

Accidents divide themselves naturally into three classes: (1) those in respect to which the employer has a more or less well equipped medical and surgical organization which looks after not only first aid but subsequent attention until healing is complete; (2) those happening in an establishment where there is no medical organization whatever and where, when a man is hurt, an ambulance or carriage is called if he cannot walk or travel alone, he is sent to the doctor or hospital for attention, the Compensation Board is notified, and the employer thereafter may or may not (too often the latter) show any special interest in him until he reports again as able to work; (3) that type of case which happens in a somewhat obscure manner. The employer possibly is not informed of it, the man goes home and is treated without much regard to precautions against infection, or possibly he first realizes that something has happened when the onset of infection or other trouble is noticed, then he tries to think back and discover the cause.

The majority of accidents, of course, fall within the first two groups, but so far as the work of the Compensation Board is concerned, cases in the latter group give most trouble. It goes without saying that there is little to complain of as regards medical aid in cases falling within the first group, and it is noticeable that a well organized medical aid department in a big industrial establishment is able to very substantially reduce the number of cases requiring more than first aid.

Employees in packing houses are, in the nature of their work, peculiarly exposed to infection. One large packing house in Ontario during the first two or three years of our administration reported an unusually large number of such cases. Their attention was drawn to it. Shortly after that the medical aid provisions of our law came into force and a resident doctor was added to the staff of the establishment referred to. The difference was remarkable. Nothing, to my mind, could better illustrate the importance of getting hold of these cases promptly and it is certain that infection must have been arrested in a large number of cases by quick action on the part of the doctor and his staff. Here is where "a stitch in time" not only saves nine, but often ninety times nine.

The second group of cases has to do with the greatest number of employers. In most cases such employers probably feel that they have not a large enough establishment to warrant the expense of a resident physician, or even a first aid department. Many of them, of course, have first aid kits, but unless it is made the special duty of some one or two persons in the establishment to be in charge of such first aid boxes and the point emphasized that those so charged should by special instruction qualify themselves as real first aid men, it would probably be better in many cases that they did not attempt anything at all in the nature of a first aid dressing unless it be of the simplest nature.

The Choice of Physician

Then comes, of course, the question of choice of doctor. Much has been written on the subject: Who shall have the choice of the physician; whether workman or employer? If the doctor is what he ought to be, I am not much concerned as to whether he is chosen by the employer or the workman. In Ontario, the question of choice of doctor has given us very little trouble. There is no absolute right on either side in this matter. If any controversy arises, the Board settles it without reference to either party, and the doctor so appointed is, of course, in the nature of a referee.

In most cases the doctor is actually the choice of the employer, but here possibly is where many doctors fail to appreciate their true position. Many of them feel that having been so chosen by either employer or workman they have thus acquired what for many years before the days of the modern medical aid provision under workmen's compensation laws had come to be regarded as a sort of professional vested interest in the injured workman. They do not recognize that under the law they are given a special status. Many of them do not realize that while owing every professional obligation to the injured workman, they really are called upon to exercise quasi-judicial functions. They should be just as fair and open minded in regard to their workmen patients as the members of the boards are expected to be in administering the law. If we find a doctor constantly acting as if he were holding a brief for his patients, we can have very little confidence in his judgment. Of course we want the doctor in charge of a case to express his frank and honest opinion, but the type of doctor we complain of is the man who cannot and will not see both sides of the case. We had a case early this year of quite a prominent doctor in Ontario whom no one would ordinarily thing of calling dishonest, yet this is what happened: A man was reported as being in a serious condition from gangrene, due, it is alleged, to a frozen foot. The employer reported frostbite, but the doctor, as soon as he saw the case—as we later learned—diagnosed it at once as senile gangrene. He spoke to the employer about the case and the latter, either through ignorance or a dishonest desire to help the man, gave the doctor the story of frostbite. The doctor thereupon completed his report on the case and gave the Board frostbite as the cause of the trouble. Some slight inconsistency in the reports led us to feel that the thing was not bona fide and we investigated. As soon as the doctor learned that one of our officials was making inquiries about the case he tried to square himself by writing the Board that he was mistaken and that it was not a Compensation Board case

*Read before the Seventh Annual Meeting of the International Association of Industrial Accident Boards and Commissions, San Francisco, Calif., September 20-24, 1920.

at all; that the trouble was not due to frostbite. That claim, had it been allowed, would have cost the accident fund seven or eight thousand dollars, because the man died, and I suppose had the doctor got away with the story and the claim been allowed he would have considered it clever.

The point I wish to emphasize in giving this illustration is the duty that medical men owe to the administration of the workmen's compensation laws. They are part of the administration machinery and it is important that they be just as honest and impartial as if they had the responsibility of actually awarding compensation.

This paper is supposed to treat the subject, the economy of proper medical treatment. Perhaps much of this argument has not followed the line which the program committee expected, but it is certain that fair and honest medical reports as an aid in administration will effect very great economy, and this, in a financial sense, is just as important as the most efficient medical aid rendered to the injured man. The average doctor—yes, I believe 99 per cent of the doctors, bring the best skill of which they are capable to the aid of their patients and this, at first at all events, quite without regard to where their professional fee is coming from; and it is to the credit of the profession before the days of workmen's compensation—and probably it is the case to some extent still—that much valuable time and most efficient services were or are rendered by physicians and surgeons in every jurisdiction with the certain knowledge in many cases that no remuneration would be forthcoming. Now, however, under workmen's compensation laws things have changed. The doctor is necessarily made a part and an important part of the machinery of administration, but the laws were not made for his benefit. That is too often forgotten in his professional zeal. He is not the end, so to speak, but one of the means to the attainment of the law's clearly defined purposes, viz., the relief of the injured worker. Under most laws now full medical attention is provided for without any limitation except the judgment of the administering board. Payment of the doctor's fee is provided also. He gets paid now in every case coming under the law. Formerly, he was lucky if he were paid anything. If an insurance company was on the case and there was liability or a suggestion of it, his fee would be included in the much desired settlement, and in such cases the fee was usually liberal. Under the practice that thus grew up, doctors—many of them at least—were spoiled, but the point I have thus digressed to emphasize is, that taking the general average of doctor's fees, paid in work cases, even though the scale may be lower in some cases than the fees formerly paid, there is, I believe, much more money paid to the medical profession in the aggregate than they received under the old practice. A few doctors at first were irritated because of the control over fees exercised by the Board, but they soon came to realize that on the whole the allowances were fair and, after all, why should not a doctor's bill be subject to the judgment of a taxing officer the same as an attorney's bill in ordinary legal practice? The doctor in a compensation case has a status and an exclusive privilege under the law and is just as much an officer under the law, and should be controlled by the law, as the lawyer is and should be, who enjoys the exclusive benefit of the system of legal practice established by the law courts in this and every land.

There is need of little argument to convince members of accident boards of the importance in relation to this question of the value of full medical aid as compared with the quarter or half way measures adopted by many jurisdictions at first. I have noted with much satisfaction that many jurisdictions are amending their laws in this respect, very largely if not entirely removing the old limitations. This is as it should be. Nothing can possibly be more economical from the point of view of compensation or the saving of unnecessary compensation than to bring the most effective remedial measures to bear so as to restore the injured worker to a working condition at the earliest possible moment and get him off the fund. Surely full medical aid is much more important to this end than any half way measure.

A simple illustration will emphasize this point. I know of a certain hill in my city up which heavy loads have to be constantly hauled. It was a killing job for a team to make this grade. The city, at the instance of the humane society, provided an extra team at the foot of the hill to help each load up. Would anyone argue that the city was performing any real service if they helped the load only half way up instead of going over the top? That is really, in a sense, what the jurisdiction is doing that helps the unfortunate worker only half way up the hill to recovery, and it is surely the man who is carrying the heaviest load—that is, the man with the very severe injury and consequently needs a lift most—who is left stranded in the middle of the hill. If the voice of this Convention has any influence on the legislatures that are still backward in this important matter, I hope it will be raised with all the strength at its command.

Doctors the Key to the Situation

My political economist friend, however, sees another point and it is probably not less important. That is that every day the productive energy of a worker is checked by either total or partial disability the Nation suffers a distinct loss. He will give the exact figures in dollars which such loss amounts to. I cannot do that, but it is not difficult to multiply a million men by one day, and in terms of days we have a million days' production lost to the Nation, if there should be during the year that many men each taking a day longer in recovery than is necessary. The doctor is really the key to this situation. If he is honest, and most of them are, he will see that the man is advised to get back to work at the earliest possible moment. A few doctors, however, in fact quite a few, are often indifferent or have a sordid notion that the longer they keep the man off work and under treatment the greater will be their fee. Such doctors should be weeded out and not employed at all on compensation cases.

These matters constitute some of the problems that enter into the economics of the medical side of workmen's compensation laws. It is a very important side to the administration. It must be appreciated that the average doctor has a high sense of his professional duty. Our troubles, such as they are, are with the few whose mainspring and purpose in life is selfishness rather than service, and there should be no place for such a man within the portals of a well ordered administration.

ASSUMES RED CROSS OFFICE

Arthur G. Rotch has assumed the post of manager of the New England Division of the American Red Cross to succeed James Jackson. Mr. Rotch has been assistant manager of the Division since December, 1917, in charge of administration. He was graduated from Harvard in the class of 1903. Previous to joining the Red Cross, he was a landscape architect, with offices in Boston and New York. He is a director and member of the Executive Committee of the Infant's Hospital of Boston and vice-president of the Massachusetts Central Health Council.

ECONOMY OF PROPER MEDICAL TREATMENT*

By PAUL B. MAGNUSON, M.D., Medical Director, Illinois Industrial Commission, Chicago

IN THE October, 1919, issue of the *Annals of Surgery* there appears on the first page an article by Dr. George W. Crile, of Cleveland, entitled "The Good Surgeon," which seems to me to be so applicable not only to war and civilian surgery, but to the special surgery of industry, it is, by permission, being copied in part as a preface to this article:

The surgeons and the pathologists who for four years have intensively studied war wounds have formulated many theories of treatment—many apparently contradictory theories. Thus there have been presented the claims of the value of various chemical agents against those of no chemical agent; of moist dressings against dry; of heat against cold; of frequent dressings against infrequent dressings, and of no dressings against both; of sunlight and of electric light against occlusions; of immersion against hot air; of bacteriological control against clinical judgment; of vaccine toxin and foreign proteins against normal reaction; of wound inoculation with harmless organisms against wound sterilization; of isotonic against hypertonic solutions; paste has competed with paste, bipp with ip, sap with both, and chromic paste with all.

Does not this intensive study of infection in war wounds for this comparatively short period equal and recapitulate the more leisurely study of infection during the thirty years since Lister first proposed the carbolic spray? And is there not slowly emerging from the present conflict of opinions the same fact as that which emerged from the post-Listerian period—that the one agent of successful surgery, whether war surgery or civil surgery, is *the good surgeon?*

This paper is written in the light of two years experience as medical director of the Industrial Commission of Illinois and nine years experience as chief surgeon of several large corporations, having a great number of accidental injuries to care for every year. My criticism is intended to be constructive, and it is voiced in a spirit of helpfulness; if anybody's toes are trodden on, it is not with the intention of arousing the ire of those mutilated, but with the hope that the suggestions may result beneficially to the injured employee, to the employer, and, incidentally, to the profession.

New Attitude Toward Injured

With the enactment of workmen's compensation laws throughout the country it became necessary for industry to adopt an entirely different attitude toward injured employees. The old practice of turning the matter over to the claim department to make the lowest possible money settlement in cases where liability existed, or to the legal department when suit was instituted, had begun to give way before that all powerful weapon, public sentiment, even before the new theory that industry as a whole should stand the loss incident to injuries to employees was enacted in the law. Some of the more progressive and far sighted corporations gradually adopted the policy of administering first aid and furnishing surgical attention when men were injured in their plants. At first this was done only when the injury was caused through circumstances under which there might be liability for damages. The next step was the shop doctor, paid a certain fixed sum per annum, and then his services were made available to all injured employees regardless of liability. Then emerged a new branch of the profession known as industrial surgery, which even now is still in its infancy. This arrangement justified the expense in that it kept employees at work more steadily and frequently paved the way for a cheap settlement of a liability case. This latter consideration tended to make the doctor an adjunct of the claim department, a function which is exacted of many of them in this enlightening day and age.

The practice of relying upon the plant doctor to obtain the confidence of the injured employee and thus make smooth the way to a settlement was not, then, without justification. The employer, while none the less morally liable, was not legally liable to furnish medical and surgical treatment to injured employees, and when he did furnish it, although not from philanthropic motives, who shall say that he is not entitled to the benefit of intelligent, honest cooperation on the part of the company doctors toward minimizing the amount paid out in damages? Probably because there was no duty devolving upon the employer to furnish medical and surgical assistance, little attention was paid to the quality of such service as was furnished, and the wonder is that this branch of the profession has advanced to its present status, in view of the initial qualifications of doctors at first employed. The term "company doctor" was one of which no surgeon was proud. When the employer was in the market for a doctor it was sufficient that the applicant have a license to practise. No further inquiry was made as to his qualifications, and from my experience I conclude many employers obtain the services of their doctors now in a similar manner.

By the terms of the workmen's compensations acts in various states the duty of furnishing *necessary* medical and surgical treatment devolves upon the employer, and it does not suffice to employ a man who is not competent to give the *necessary* medical and surgical attention. Moreover, to furnish anything less than the best obtainable is economically wrong, because the cost of medical service in any serious case is an infinitesimal part of the amount the employer might be called upon to pay, and any case might develop into a serious case. It is not to be expected that the employer or an executive in a corporation is capable of passing upon the qualifications of applicants for the position of plant surgeon. In the very nature of things such an employer must either "go it blind" or rely upon the judgment of some person who knows as to the qualifications of his doctor. It is very certain, however, that if such a man were in need of a doctor for himself or a member of his family he would come pretty near making certain that the doctor he employed was qualified, and there is no real reason why he should employ a less capable physician or surgeon to look after his employees than he would to care for himself and family. Judging from industrial conditions in the state of Illinois, there are very few employers who know where their doctor was graduated, whether he had an internship in a first class hospital or an assistantship under a competent surgeon; whether he is a man of tact and force; and whether he can handle men, not only employees, but members of the claim department, who by the very nature of their occupation must be suspicious of human nature in general as a rule. I do not mean this as a stigma in any sense of the word, but a good claim man must be "from Missouri" if he is a good man

*Read before the Seventh Annual Meeting of the International Association of Industrial Accident Boards and Commissions, San Francisco, Calif., September 20-24, 1920.

for his employer, even though fair minded, and most claim men with whom I have come in contact are very fair minded and willing to do what is right if the matter is presented to them properly by the medical profession.

Rare Tact Required

The employment of a physician on this basis is a bad start, because he comes into more intimate contact with employees than probably any other head of department except an operating superintendent. He must impress employees with his ability and his fairness if he is to win their confidence. He must not let himself be involved in the settlement of any claim as a claim adjuster; he must be the friend of the men from the time they come to him until the time they leave him, and inspire confidence in both the claim department and the men. It requires a rare degree of tact to convince an employee that the company doctor is interested only in his welfare and not in the settlement of his claim at the cheapest possible figure, and it is only when this has been well established in an industry that the company surgeon becomes valuable.

I recall one surgeon who took charge of a large industry which was perfectly controlled in its organization by the union, and within a year of the time he took charge he had also been elected official examiner for that union. This same man saved that company the first year of his employment $20,000 in the claim department in spite of the fact that the number of accidents increased 10 per cent over the previous year; and as against thirty-one lawsuits filed the year before he took charge, there was one lawsuit filed the first year of his employment. In almost ten years he was on the witness stand only twice for this corporation, and in both cases testified with such fairness and impartiality to the man's condition that although in one case a $25,000 verdict was rendered against the company the attorney for the plaintiff settled the case for $6,000, because they said the medical testimony was so conclusive in their minds that they did not believe the case would stand appeal, and also said that they had been misled by medical men employed on the plaintiff's side of the case to believe that the man was hurt more seriously than it proved he was, and also because the reputation of the man acting as surgeon was too great to be combated by ordinary medical testimony. Within two years from the time this man left the employ of this corporation there were three verdicts rendered against the corporation for injuries—one of $11,000, one of $18,000, and one of $24,000—not because the injuries were any more severe than many treated before this, but because the results were so eminently bad that all that was necessary was to show them to a jury. It would be hard to convince this company at this time that a man with small training is an economical man to employ.

It is because industrial surgery has been dragged in the mud for many years, neglected and abused, and the doctor made a part of the claim department that men of large reputation will not as a rule take upon themselves the guidance of the medical work of a corporation, although the field is as much a specialty as treatment of eye and ear conditions; the general surgeon does not as a rule have the liking nor the mechanical ability to treat industrial cases. The orthopedist, on the other hand, as a rule has not had the surgical training, and surely industrial surgery involves acute surgical judgment as well as thorough knowledge of mechanics. Most men do not care about the treatment of fractures, and when it comes to the careful guidance which must be given recovery of injuries to tendons and ligaments they are not interested enough to go into details of seeing that the man receives the proper treatment.

A well equipped department of massage, electro- and hydrotherapy should be an adjunct of every large industrial surgical institution. Here we are up against the almost unsolvable problem of finding men who know how to give massage properly, who do not want to break down adhesions by force during the first treatment, who do not want to stretch muscles to the full limit at the first treatment; who know how to increase circulation, to re-establish elasticity in ligaments, gradually to break up adhesions in joints; to promote circulation and strength in muscles, to apply electrotherapy scientifically in the treatment of traumatisms to nerves, and to mobilize joints adjacent to fractured bones. We can find individuals who know one of these subjects, but the individual who knows how to apply all of them correctly is indeed a rare specimen.

I have advised massage in many cases and had the patient come back in a number of weeks without any improvement whatsoever, and upon inquiring into the kind of massage found that it consisted in the application of hot towels and the rubbing of the skin or else the other extreme of too much force, with its consequent setting up of traumatic inflammation by the too rapid breaking down of adhesions, which elicits pain and swelling and inhibits the recovery rather than stimulates it.

Haphazard Treatment Superseded

The industrial surgeon must know as well as surgery and mechanics of the human structures how and when to apply these treatments, and must see that his subordinates perform their duties properly. As massage is given now it is a haphazard sort of treatment, and certainly does not give us the results that it should under scientific management. We must have schools for the proper training of individuals for this branch of work if industrial surgery is to take its place in the ranks of specialties, where it belongs.

The question has been asked several times, "What can we gain by having a good surgeon oversee our work? Our work is so scattered that no one man can take care of all of it." This is the case in a great many instances where corporations have scattered branches. Judging from what has been accomplished, it would seem apparent that the surgeon who knows what may happen in a given industry can prepare a report blank which will cover all the essential facts and bring to him the information which he must have to judge whether a case is serious or liable to become serious and not leave it to the man who has had a comparatively limited experience. For instance, construction work involves climbing on scaffolding and ladders, from which men fall. If a man weighing 160 pounds falls 20 feet and strikes the ground on his feet, it is a fair assumption that he has not received a sprained ankle only, but probably received a fracture of the os calcis of one or both feet; and, judging from the cases that come before the Illinois Industrial Commission, most fractures of the os calcis go undiagnosed until after the damage is done and repair beyond possibility.

A fracture of the os calcis is a serious affair to a man who has to climb or walk, because in a large percentage of cases the heel is so carried upward and outward, the plantar fascia is torn, the foot is pronated, callus forms between the os calcis and astragalus, and the man not only loses the lateral motion of his foot but has constant pain when walking or standing, from the pressure of

the callus on the tendons running under the external malleolus. The plantar fascia being broken and the arch having lost its support, pronation becomes more complete as walking is tried, and the man has a foot which grows progressively worse with use and finally, in a large number of cases, loses from 50 to 90 per cent of the use of his foot, which totally incapacitates him for any occupation that involves climbing, or walking on scaffolding or uneven ground. If these cases are taken in time and properly treated, the major part of this disability can be averted, and the surgeon who prevents one of these disabilities saves a considerable portion of his yearly salary on one case alone, although it may be much better than the ordinary salary paid industrial surgeons.

Back injuries are some of the most serious with which we have to deal, and these injuries are practically never recognized by the surgeon who sees only a few scattered cases. They are called strains, and judging from past experience, most of them are told to rest for a few days and return to work, adhesive plaster strapping or hot applications being used in the meantime. The competent industrial surgeon should be an expert on the diagnosis of injuries to the spine, and instead of allowing them to run along from week to week and from month to month, they should be brought before the surgeon in charge and proper treatment instituted before the patients become neurotics, which is not at all an unusual ending.

Shoulder injuries are probably as often badly mistreated and poorly diagnosed as any other joint. We have in the shoulder an interlacing network of tendons which have an extremely poor leverage, with a number of bursæ, which are prone to develop inflammations with comparatively slight traumatisms. The usual treatment is immobilization with the arm at the side and the hand bound to the chest, which is the position of internal rotation. Adhesions quickly form around the shoulder structures, and when the arm is removed from its immobilization we not only have to overcome the adhesions but we also have to overcome the force of gravity in order to lift the arm. This is a difficult thing to do inasmuch as the normal position of the arm is at the side, and even though massage is instituted, a half hour's massage treatment is a poor attempt at mobilization when the other twenty-three and one-half hours of the day the patient's arm remains at his side in immobilization on account of the pain involved by motion. If the arm is properly put up at the time of the injury in external rotation and abduction, the muscles which raise the arm are allowed to contract, whereas the muscles which pull the arm to the side, assisting gravity, are held on the stretch. When the patient's arm, then, is relieved from the fixation dressing the muscles which have the poorest leverage are the strongest and the muscles which have the greatest leverage are the weakest but are assisted by gravity in bringing the arm back to the normal position. In this way motion is quickly re-established as well as almost painlessly re-established.

These are only a few of the points that the good surgeon knows and points that are extremely important in getting a man back to normal. They are things which the inexperienced or careless surgeon does not know and does not do.

Factors Prolonging Disability

Allowing broken limbs to remain in fixation dressings for long periods of time is another thing that prolongs disability, and the chief complaint coming before the Board after fractures is that "they just let me lay there and did nothing for me for weeks after the cast was removed." Everyone knows that a joint which has been immobilized for a number of weeks is a painful thing to move or rest weight upon. Even individuals of high mentality will not give themselves pain voluntarily, and how can we expect individuals of the average mentality of the working man to do something which others will not do? We say to a man, when we remove the cast from the fracture: "The bone is united, now you must use it." Very easily said, but not so easily done, because every time the patient tries to use it, it gives him acute pain. If the cast is kept on just long enough to allow healing and then removed each day for gentle, passive motion of the structures surrounding the joints above and below the fracture, these structures do not become hard and immovable; the circulation is kept up and the tone stimulated. There is little wonder that neurosis develop in many instances, because there is nothing done. If a man lies week after week with a painful member, the habit of pain becomes very firmly fixed in his mind, especially if he feels he is being neglected by those whom he also feels are responsible for his injury. If, however, every day he is given a half hour's treatment of the injured member, followed by gentle massage which tends to re-establish the circulation and elasticity of the parts, he not only receives results on the injured members, but he feels that there is something being done to hurry his recovery. His mental attitude remains that of a man who is friendly; he does not become morose, he does not feel abused; and when the pain becomes less severe he can be persuaded to use the member to his own advantage. It is my opinion that disabilities following fractures can be cut down in time of recovery and in percentage of disability from thirty to fifty per cent by the proper and prompt use of massage and dry heat; and that neurosis cases will largely disappear when the doctor realizes his responsibility and the employer is willing to expend money for something which seems to him unnecessary, when he is employing a surgeon to take care of his employees.

The surgeon has not the training, nor has he the time if he is the right kind of a surgeon, to give massage treatments, and he should not be asked to do it except the passive motions which are established early in the fracture cases, and these for the main part should be seen to by the surgeon so that no change in adjustment of the fractured bone occurs. It is hard for employers to realize that all doctors have not the same qualifications, but if he is the right kind of an employer he will look well into the qualifications of the surgeon who takes charge of his work as carefully as he looks into the qualifications of the superintendent of his production department and he will pay him a salary which is commensurate with the experience and training that he has had. He will not expect him to be a part of the claim department, but only a physician to his employees. No employer who is conscientious will employ a man to take care of his employees whom he would not employ to take care of his family, and it is a reflection upon the honesty of opinion of an employer who employs one surgeon to care for his employees and another to care for himself and family. It has been my experience up to this time that most employers do not go to the company doctor when they themselves are ill, which would seem to indicate that their opinion is that any doctor will do for the workmen, but they must have the best for themselves. If the employer is a good business man and looks into the subject thoroughly, I believe he will decide that the best doctor he can get, who is specially trained in industrial work, who is a graduate of a good school, who has had

an internship in a first class hospital, who has had experience under a competent surgeon, or, if possible, has taken a special course in industrial surgery, is the best investment, because such a man will inspire confidence in the employees, smooth the way for amicable adjustment of claims, make a small percentage of disability where there may have been a large percentage, prevent disabilities where they are preventable, and save his salary every three months for any large employer of labor, to say nothing of the trouble which is saved to the human race which is brought about by disabilities. Such service is adequate and, in the long run, economical.

SYSTEMS OF MEDICAL SERVICE*

By JOHN WILSON MOWELL, M.D., Chairman, Medical Aid Board of the State of Washington, Olympia, Wash

WHEN the Workmen's Compensation Act was first framed and submitted to the legislature of 1911 it had as a part of the act written into it at the time a medical aid provision for the payment of surgical and hospital bills. However, the legislature eliminated this section of the act and passed a compulsory compensation act without any provision for medical treatment to the injured.

During the period between 1911 and 1917 injured men were taken care of at the direct expense of the injured workman, either by monthly contribution in the form of contract or by paying his own bill when injured. The injured men who were taken care of by monthly contributions by contract were taken care of in a fairly satisfactory manner, but when no such provision was made it was often difficult to procure medical and hospital attention, and sometimes impossible, because of the fact that the man had no money to pay the bill himself and the compensation was inadequate to care for his hospital and surgical bills. As time went on it became more and more evident that some form of medical aid was absolutely necessary to provide efficient treatment for the injured workman.

Medical Aid Essential

The legislature of 1917 passed our present Medical Aid Act as an amendment to the Workmen's Compensation Act, but placed its administration under a separate board and made it the duty of this Board to see that the injured employees receive proper and efficient treatment for their injuries, the expense of same to be divided equally between the employer and employee. In order to carry this into effect they provided for two systems. One known as the "Contract System," whereby an employer may, with the consent of 51 per cent of his employees, enter into a contract with a physician or hospital for the care of his injured workmen. This contract to be approved by the Medical Aid Board, and the contractor to receive 90 per cent of the money contributed from such employer and his employees for medical aid as payment for this service. After having made the contract, the employees of such employer must accept the services of the contractor. In case they do not, they are required to stand the expense themselves.

It provided a second plan in what is known as the "State's Plan"; that is, all employers who saw fit not to contract, pay all of the medical aid money into the medical aid fund, out of which all surgical, hospital, and other bills for injured workmen are paid. This system gives the man a free choice of physician and hospital in the first instance, provided it is within a reasonable distance of the place of injury.

The Medical Aid Act provides that a physician and surgeon be the chairman of the Board, and the Board has dedicated to him the power of administering the orders, rules, and regulations that the Board has adopted, with the provision that anything, where the policy of the Board is involved, be considered by the Board prior to action on same. This provision of the act makes it possible for the Board, should it desire, to take up the treatment of each individual case and provide treatment consistent with its requirements, thereby achieving results that would be impossible if the Board were restricted to the necessary limitations of a legislative act that did not provide for administrative rules to be promulgated by the Board. This is one of the outstanding features of the law, because the Board may readjust its rules from time to time, if it becomes necessary for the proper administration of the intent of the act. This makes it possible for the Board to consider efficiency of treatment only. It also gave the Board authority to make a fee bill for the payment of surgical and hospital fees. By these rules the Board has restricted the free choice of physician to the first instance only.

If the Board finds that in its opinion the transfer of any bad case will hasten its recovery or lessen the permanent partial disability, the right is reserved to transfer such injured workman to such a place and under the care of some surgeon of its own choice. This allows the Board to take up reconstructive work, or postoperative work of any kind, which in its opinion is the greatest feature of the Medical Aid Act at present. We have been able to take cases that were entirely unable to work because of some condition which surgery would remedy and by having this work done the claimant was able to return to some gainful occupation and often with practically no permanent partial disability. The advantage to the workmen is apparent in a provision which is flexible enough to permit the application of such special measures as will reduce their permanent disability to a minimum. That it favors departmental efficiency goes without saying. So in the state of Washington when we come to draw a parallel between the conditions under which the workmen received medical and surgical attention prior to 1917 with the present method of handling these cases under the Medical Aid Act, we can hardly compare them.

In the first instance, a part of them received very inadequate attention. At present they all receive the best care that they can receive in the particular location in which they happen to be working, and if that locality is not up to a high standard of treatment the bad cases are transferred to where they will receive such care and attention as their cases require. This régime entails more prolonged supervision than has usually been contemplated, but the additional service is offset by increased efficiency of administration and the functional results obtained for the injured. This ideal of the best possible results for the patient serves the best interests of the Department.

*Read before the Seventh Annual Meeting of the International Association of Industrial Accident Boards and Commissions, San Francisco, Calif., September 20-24, 1920.

MEDICAL SERVICE UNDER THE MASSACHUSETTS WORKMEN'S COMPENSATION ACT*

By FRANCIS D. DONOGHUE, M.D., Medical Adviser, Massachusetts Industrial Accident Board, Boston, Mass.

FROM a most modest beginning the medical work of the Massachusetts Industrial Accident Board has gradually developed until its importance is now second to no other provision of the law, not excepting even the compensation provisions. From a little section dealing with the furnishing of medical and hospital services during the first two weeks after the injury only, the law has been amended until it now takes in every case of serious and unusual injury, provides for reasonable medical and hospital treatment and medicines for the full period of hospital care under the wise and broad interpretation given the "unusual case" provision of the law by the Board, and lately has been amended so that the Board may, whenever in its opinion such appurtenances are beneficial, order the insurer to furnish and pay for artificial appliances and thus get the employee back into industry within the shortest possible period of time.

Medical Features Most Important

In addition, the medical sections of the law have been amended to provide that the written report of the impartial physician shall be admitted in evidence as a part of the record upon which a board member may base his decision. This, in brief, is an outline of the provisions of law in Massachusetts which have exalted from an humble beginning the medical features of our law to a place among the highest and most important sections of the statute.

The following are the sections of the law governing the medical features:

Medical and hospital services (Part II, section 5).—During the first two weeks after the injury, and, if the employee is not immediately incapacitated thereby from earning full wages, then from the time of such incapacity, and in unusual cases, in the discretion of the Board, for a longer period, the association shall furnish adequate and reasonable medical and hospital services and medicines when they are needed.

Right of employee to select physician other than one provided by association.—The employee shall have the right to select a physician other than the one provided by the association, and in case he shall be treated by a physician of his own selection, or whether in case of emergency or for other justifiable cause a physician other than the one provided by the association is called in to treat the injured employee, the reasonable cost of his services shall be paid by the association, subject to the approval of the Industrial Accident Board. Such approval shall be granted only if the Board finds that the employee was so treated by such physician, or that there was such emergency or justifiable cause and in all cases that the services were adequate and reasonable and the charges reasonable.

Board may order insurer to provide and pay for artificial appurtenances.—In any case where the Board is of opinion that the fitting of the employee with an artificial eye or limb or other mechanical appliance will promote his restoration to industry it may order that he be provided with such artificial eye, limb, or appliance at the expense of the insurer.

Examination of employee by physician for Board (Part III, section 8).—The Industrial Accident Board or any member thereof may appoint a duly qualified impartial physician to examine the injured employee and to report. The fee for this service shall be five dollars and traveling expenses, but the board may allow additional reasonable amounts in extraordinary cases, and the association shall reimburse the Board for the amount so paid. The report of the physician shall be admissible as evidence in any proceeding before the industrial accident board or a committee of arbitration, provided that the employee and insurer have seasonably been furnished with copies thereof.

Fees subject to approval of Board (Part III, section 13).—Fees of attorneys and physicians and charges of hospitals for services under this act shall be subject to the approval of the Industrial Accident Board. If the association and any physician or hospital, or the employee and any attorney, fail to reach an agreement as to the amount to be paid for such services, either party may notify the Board, which may thereupon assign the case for hearing by a member of the Board in accordance with the provisions of this Act. The member shall report the facts to the industrial accident board for decision, and the decision shall be enforcible as provided by Part III of section eleven.

Hospital records as evidence (Part III, section 19).—Copies of hospital records kept in accordance with the provisions of chapter three hundred and thirty of the acts of nineteen hundred and five, as amended by chapter two hundred and sixty-nine of the acts of nineteen hundred and eight, and of chapter four hundred and forty-two of the acts of nineteen hundred and twelve, certified by the persons in custody thereof to be true and complete, shall be admissible in evidence in proceedings before the Industrial Accident Board, or any member thereof. The Board, or any member, in its or his discretion, before admitting any such copy in evidence, may require the party offering the same to produce the original record.

The duties of the medical adviser embrace the systematization of all the vast amount of medical information required under the Workmen's Compensation Act; advice with reference to all medical problems; supervision over the work of impartial examining physicians; the direction of expert help and testimony in certain exceptional cases; the outlining of the essential medical facts required to decide whether disputed nonfatal and fatal cases are covered by law; and the preparation of such cases impartially for hearing in order that the provisions of the act may be made effective speedily and with the least possible cost and annoyance to the parties at interest.

Appointment of Impartial Physicians

The work of advising the Board on the appointment of impartial physicians is a duty of the medical adviser, for the purpose of having a uniform system based on expert knowledge of the requirements of the different cases that arise, and to permit of the selection and training of physicians in a manner that will insure impartial examinations and reports according to the technical requirements of the compensation law. As far as possible, also, examiners are assigned to cases according to geographical proximity to the residences of injured employees. In some instances cases are of such nature that it becomes necessary for them to report for examination in Boston or in some other large center where the facilities for examination are better than in the immediate locality where the employee resides. When this action is necessary or advisable the expenses of the employee incident to the trip are paid by the insurance company. In all cases the aim in selecting physicians is to provide a man whose training and experience fit him to examine and report expertly according to the special features

*Read before the Seventh Annual Meeting of the International Association of Industrial Accident Boards and Commissions, San Francisco, Calif., September 20-24, 1920.

involved in the case, not only as to past disability but as to future treatment.

In connection with the assignment of impartial physicians according to the nature of the case and location, some interest may be attached to a brief statement of the process by which the impartial reports are handled at the office. Upon receipt of impartial reports these are in all cases first read by the medical adviser to make certain that the report properly covers the necessary points involved in the case. Copies are then made and sent to the employees, insurance companies, and, in some instances, to other persons who have a direct interest in the case. The impartial examination is not related in any way to the examinations which the insurance company is permitted by law to have performed in its own behalf, by a physician appointed outside the jurisdiction of the Board. The impartial examination is to assist the Board and the interested parties in obtaining reliable medical opinions which under the law have the weight of being entirely separated from any direct interest either in behalf of the employee or the insurance company.

Every insured fatal case that comes to the attention of the Board through an accident report, or otherwise, is referred to the medical department in order that all necessary steps may be taken to procure proper and adequate records, such as hospital reports, statements of physicians, and copies of autopsy reports when these have been made. Informal opinions are stated in these cases to indicate the probable connection between injury and death.

Opinions are given, also, on the records in cases in which there is a possible question of additional compensation on account of amputations, reduction in vision to one-tenth of normal, or other specified injuries such as may render permanently incapable of use members of the body, including arms, legs, fingers, toes, or phalanges.

Another important function of this department here briefly described is the action taken upon disputed medical bills. In case of dispute, although the physician has the right to have a formal hearing, the practice in general is to endeavor to adjust the matter if possible on the basis of an informal opinion by the Board based on the records in the case. In such cases the attending physician or the hospital is requested to submit a copy of the bill in dispute, and to answer a form set of questions describing the nature of the case and the treatment given. With this information and the other records in the case, an informal opinion is given as to the reasonableness of the bill on an industrial basis. Many cases are settled in this fair and impartial manner, although neither side is thereby prejudiced from having a formal hearing and decision based on the evidence submitted.

What Constitutes an Unusual Case

Another important, and at times perplexing, question with relation to medical attention is "What constitutes an unusual case requiring the payment of medical and hospital bills beyond the statutory period of two weeks?" The reasoning of the Industrial Accident Board for the consideration and determination of this question in each individual case according to the evidence is epitomized in the following extract from the case of John Brady, Brockton Hospital, Dr. Barrett *v.* United States Casualty Company:

The only case in which the question as to the right of a physician to the payment of his bill for a longer period than two weeks was before the Supreme Judicial Court of this Commonwealth is Huxen's case (226 Mass. 292). In this case the court said: "It is not in an ordinary case requiring longer medical attendance that the discretion of the Board may be exercised to charge this attendance to the expense of the insurer. It is only in unusual cases that they may do so. There would be grave doubt whether a case where the employee is able to go from his home in Cambridge to an office in Boston could be so unusual as to be within the purview of the act."

The word "unusual" is defined as follows:

"Of a character, number, or size not usually met with; uncommon; infrequent; rare." (Standard Dictionary of the English Language, Funk & Wagnalls.)

"Not usual; uncommon; rare." (Webster's Dictionary.)

"Not usual; not frequent; not common; rare; strange." (Century Dictionary.)

The evidence shows that this case is unusual; that it is a case out of the common run of cases, in view of the nature of the injury and the complications following such injury. The usual case and the usual personal injury arising out of the employment are those cases and injuries which require ordinary medical treatment and care, and go along uneventfully to their termination, and they may or may not require treatment for a longer period than two weeks. These cases are not within the discretion of the Board to allow further medical and hospital fees after the first two weeks. A case may be unusual because the nature of the injury, its particular location, and its extensiveness necessarily entail a prolonged disability; that is, longer than the usual. It may be unusual because of any interruption of convalescence of such a nature as not to occur commonly in that particular class of cases, and because it is likely, unless specially treated, to jeopardize the probability of a speedy recovery from a medical standpoint and the employee's early restoration to his position as a wage earner. The employee's status with reference to his support of others is a factor which may be taken into consideration in determining whether a case is unusual. Under the usual classification will come so-called minor injuries, minor amputations, uncomplicated by sepsis, and all injuries or complications following them, the services of specialists, special nursing, and hospital care. Under the unusual case classification may come major injuries, compound fractures, injuries followed by sepsis, some major amputations and operations, serious pelvic and back injuries, and injuries requiring special apparatus or the services of specialists.

This was a very serious injury; the employee was in a critical condition; the stitches pulled out; and a secondary operation was necessary. The report of the injury shows that the employee had a dependent mother. It was a case that required hospital care and attention if the man was to recover at all, and particularly if he was to be restored once more to any degree of efficiency.

Probably the greatest factor in the satisfactory carrying out of the Massachusetts law has been its intelligent development along medical lines.

Eliminate Professional Witness

The old form of controversy, by presenting witnesses depended upon the weight of the evidence presented at for and against the claimant, so that the man's rights a hearing, has been materially modified by the naming of so-called impartial physicians. It was found that the malingerer or fakir in Massachusetts was almost an unknown quanitity, and that when a man came to the Board with a claim, 99 times out of 100 it was a just claim. The question, then, came on selecting doctors to examine these claimants, with the idea that a specialist in restoration of function was needed rather than a doctor who would say, "Yes, the man is disabled," or "No, the man is not disabled." In the early days of the act, the insurance companies did not avail themselves of the impartial examiner, because examiners were not picked out along special lines. With the advent of the medical adviser, taking office in December, 1914, there was a great increase in the amount of work the insurance company put up to the medical adviser for aid in solving.

It is, of course, manifestly impossible for the medical adviser to examine all disputed cases, or even a small

portion of them; and if it were physically possible, it would be an extremely unwise, not to say dangerous, thing to have any man placed in the position of examining accident cases in conference, again to express his opinion at a formal hearing, and then to insist to the full Board that his opinion was the end of the medical law and must be accepted. The great success of the Accident Board has come from the utilization of the best medical brains in the commonwealth. Members of the medical profession consider it an honor to serve as impartial examiners and are willing to make some sacrifice fully to preserve this feature of the law.

One of the difficulties that the Industrial Accident Board faces constantly is to fairly pass upon the injuries of a man who chooses his own doctor and who does not choose wisely, or the rights of a man who is taken to a place which holds itself out to be a hospital. The time will come when the State Board of Registration in Medicine, or some other state board, will supervise these hospitals, will check up their results, and will indicate whether or not they should be allowed to continue, and to what extent they will be allowed to go in treating complicated cases.

From an administrative standpoint, the Industrial Accident Board is obliged to consider all doctors registered under the laws of Massachusetts to practice as being qualified. But there is much incompetency in the treatment of fracture cases, and the results in many cases do not justify the payment of the sums of money charged for the treatment. In this particular regard, we approach old fashioned common law tort case, in which the worse the result, the greater the financial return to the doctor—and sometimes to the lawyer and injured party.

Recently I was in a doctor's office and looked over a group of certificates, imposing and impressive in their display, one of which certified that he had taken a course in anesthesia at a well known New York polyclinic; and a second certificate was so unique that I copied the wording for future reference. Let me read it to you.

School of Pathology and Operative Surgery.—This certifies that Dr. ——— has completed in a most thorough, practical, and scientific manner the prescribed course of surgical operations, including operative surgery on the cadaver, and is thoroughly competent to operate on the living. SIGNED AND SEALED.

What are we going to do about it?

I have outlined rather briefly, but as fully as need be, the medical provisions of the Massachusetts act. They may not appear to be as complete as some of the commonwealths numbered among the members of this organization. But this I may say, in all truth, and in justice to the Commission which has charge of the administration and interpretation of our law:

Outside of a law providing specifically for complete medical and hospital care for the full period of incapacity, the Massachusetts law, as interpreted by the members of the Industrial Accident Board could not be improved upon. The administration of medical service under the law as it now stands is sufficiently flexible to provide adequate care in most cases. Personal attention to the necessities of each case is given by board member and medical adviser, with the result that in practically no case where expert treatment is required or indicated does the employee go without it, and under our present plan of making one complete job of the medical care and cure of each incapacitated employee and getting him back into industry with the least possible loss of time at a suitable job, we believe that we are solving in a practical and economical way the problem of the man whom industry has maimed and handicapped.

AMERICA'S CHILDREN

Most of us take it for granted that American children go to school, receive a fair education, and, taking it by and large, are much more fortunate than the children of any other nation that we need not worry about them. But how true is our assumption? At least one-fifth of all American children between ten and fifteen are out of school earning their own living.

In one industrial center in Massachusetts, a state that stands high on our educational roll, only one child in ten finishes high school, while sixty-six out of every hundred leave school for work the moment the compulsory school law releases them. This is true in a greater degree in other states, some of which still have no adequate schooling law, require only a knowledge of English of children leaving school for work, and have a school term of only eighty days. The result is that almost one-quarter of our population is illiterate.

In fourteen states this year it is reported that child labor has increased, more children having left school for work than in 1919. Many of them are employed in industries not regulated by the federal tax on child labor; they may be employed nine, ten or eleven hours a day; they may be worked on night shifts; they may even work at trades known to be dangerous—and the child in industry is just three times as likely to suffer accident as the adult. Massachusetts, again, is more careful of her children than many states, yet in Massachusetts last year there were 1,691 industrial accidents to children under sixteen, ten of which were fatal and sixty-two of which resulted in permanent partial disability to the child.

Is all this a square deal for American children?

It is to consider such facts, to bring the child welfare situation home to all of us, that the National Child Labor Committee appoints the fourth Sunday in January each year as Child Labor Day. In 1921 it falls on January 23. It is observed not only in Sunday schools and churches, but on January 22 in synagogues and on January 24 in schools, colleges, clubs, and other organizations. Pamphlets and posters are distributed by the National Child Labor Committee for use by those interested in observing the day, and anyone who wishes such material should write directly to the National Child Labor Committee, 105 East Twenty-second Street, New York City.

It happens that Child Labor Day comes this year at the end of National Thrift Week, and so the Committee points out that the conservation of children may well be considered as an item in the larger national thrift. "Every child without an education today," says Owen R. Lovejoy, secretary of the National Child Labor Committee, "means an illiterate citizen tomorrow; every child who is overworked today means a dulled, unhealthy citizen tomorrow; and every child who enters a low-wage, blind alley occupation today, without means of advancing himself, means a poverty stricken, inefficient citizen tomorrow, very possibly a charge upon the nation. What kind of citizens do we want, and what kind are we making?" All physicians who have the human view must interest themselves in child labor.

Environment in nature, with all that it connotes, is one of the regulating factors which helps to insure the survival of the fittest. But in human life so much of our environment is artificial that it kills many who by heredity, were well fitted to survive, and protects and shields others who, in virtue of their physical handicap at birth, would have little chance of surviving were they not specially nurtured and surrounded with all the comforts that wealth and devotion can procure.—*Mackenna.*

THE NATION'S HEALTH

Public Health and Public Welfare, Administrative Medicine, Organized Health Service

C.-E. A. Winslow, Dr. P. H., *Editor*

SCIENCE AND POLITICS IN RELATION TO THE PROBLEM OF MILK SUPPLY

A RECENT statistical survey of the problems of our national food supply by Professor Raymond Pearl[1] brings out with clearness the enormous importance of dairy products in the American dietary. Wheat, pork and dairy products, as indicated in the table below, give us about three-fifths of our food energy and our body building materials; and of these three, dairy products are of supreme importance because they furnish the complete proteins, the vitamines and the calcium which are lacking in such cheaper energy sources as the cereals.

Percentage of the Total Food Supply of the American People Furnished by the Three Principal Elements in Our National Dietary

	Calories	Proteins	Carbohydrates	Fats
Wheat	26	29	42	2
Pork	16	11	..	40
Dairy products	15	20	5	27
Total	57	60	47	69

In view of these facts it would seem obvious that any discoveries tending to facilitate the production of a better and cheaper milk supply should be enthusiastically welcomed. The advance made during the past few years in the preparation of various dried milk powders seems to promise important progress along this line. Whole milk powders are now on sale which may be beaten up in water so as to make a reasonably satisfactory product in the individual household; while reconstructed milk made from dried skim milk powder and butter can be made up on a large scale so as to be scarcely distinguishable from the best fresh milk.

The same selfish local interests which have so long hampered the development of the use of butter substitutes are beginning to manifest themselves in a campaign against milk powders. In one state, for example, the Department of Agriculture and the State Board of Health have issued the following regulation:

The sale of condensed, evaporated or powdered skimmed milk is allowed, but it shall be unlawful to sell the said condensed, evaporated, or powdered skimmed milk except under the following regulations: in addition to compliance with all existing laws, the said condensed, evaporated, or powdered skimmed milk to be sold in packages or containers containing not less than one gallon or ten pounds of said condensed, evaporated, or powdered skimmed milk, which packages or containers shall be hermetically sealed at the time of sale; also that at the stores, shops or places where such condensed, evaporated, or powdered skimmed milk is sold a sign must be displayed upon which is printed in black letters at least five inches in height and worded as follows: "Condensed, evaporated, or powdered milk should not be fed to babies or invalids; it has not the food value of whole milk."

Such legislation is absolutely unjustified. It seems probable that the antiscorbutic vitamine may be weakened by drying as it is weakened by pasteurization and by the aging of raw milk. If such should prove to be the case, the remedy lies in the use of antiscorbutics, which are always desirable when cow's milk is the entire food of the infant. There is no reason to believe that the really important vitamine in milk, the Fat Soluble A or growth producing vitamine will be in any way affected by modern dehydration processes. The use of dried milk powders would go far to eliminate the sanitary dangers which surround the use of raw milk supplies; and it should materially reduce the cost of the product by cutting out 80 per cent of the freight charges for transporting the natural product and by eliminating the losses due to spoilage in transportation. The development of the use of milk powders is a logical and scientific tendency which carries much promise for the conservation of our food supplies. As such, it should receive the sympathetic consideration of all public health authorities. Editor.

1. Pearl, Raymond: The Nation's Food, W. B. Saunders Co., 1920.

THE AGE INCIDENCE OF TUBERCULOSIS

WHEN Dr. John Brownlee[1] first published his remarkable researches on the age incidence of tuberculosis, most students of the subject were frankly puzzled by the results attained. The curves presented were strikingly significant; they certainly showed that in certain districts in England the highest mortality from pulmonary tuberculosis is reached between the ages of 20 and 25, in other districts between 45 and 50; while in still others the maximum peak comes as late as sixty years. On the other hand, Dr. Brownlee's conclusions that there were three different types of tubercle bacilli involved, respectively, in the "young adult," "middle age," and "old age" types of the disease involved such far reaching biological assumptions, without any direct experimental proof, that bacteriologists could hardly be expected to adopt them with alacrity.

A stimulating and suggestive article by Dr. S. Lyle Cummins[2] furnishes us a more plausible explanation of the observed facts and forms a most important contribution to the general etiological theory of tubercu-

1. Brownlee, J.: National Health Insurance, Medical Research Committee, Special Report, Series No. 18, 1918, and Series No. 46, 1920, London, H. M. Stationery Office.

losis. The author is interested primarily in the difference between the low resistance to tuberculosis exhibited by primitive peoples who have been previously protected from extensive contact with the disease, and the relatively high resistance observed in communities where tuberculosis has long been prevalent. The latter condition he naturally attributes to acquired immunity; and the most striking part of the discussion is his analysis of the Brownlee curves, in which he shows that the "young adult type" occurs in remote regions like the Shetland Islands, the Scotch Highlands, Ireland and Norfolk, where infection—and hence acquired immunity—would naturally be least. The "middle age type" occurs in London, Lancashire, and Northumberland, and is the type to be expected in urban and industrial regions where infection has long been widespread and acquired immunity high. Finally, the "old age type" is particularly associated with definite industrial conditions, involving exposure to mineral and metallic dusts—tin mining in Cornwall, for example—and is the expression of a naturally good resistance which is ultimately, but slowly, broken down by a particularly detrimental environment. The delayed age incidence of tuberculosis in the very dusty trades is a familiar fact brought out by Hoffman and other students of industrial insurance statistics in this country. Dr. Cummins' thesis deserves the careful study of all who are interested in the etiology of tuberculosis, and it seems likely that he has discovered the correct explanation of a complex and obscure phenomenon. EDITOR.

QUANTITATIVE FACTORS IN THE CONTROL OF VENEREAL DISEASE

THE progress which was made in the control of venereal disease by the Army and the Navy of the United States during the World War was a cause for the profoundest gratification; and it is probable that the Nation gained, in increased vitality as a result of the campaign against venereal disease, far more than it lost in all the battles in which our troops took part.

The analysis of the factors which contributed to the results attained is therefore an interesting and important task. A year ago, Colonel Ashburn[1] presented a valuable study along this line which was based on a questionnaire to which replies were received from 13,648 men serving in the American Expeditionary Forces. From these data the conclusion was drawn "that anti-venereal measures are effective in the following order: (1) Those that keep men chaste. (2) Those that diminish the opportunities for sexual contact, especially efforts at the suppression of prostitution. (3) Those that diminish the dangers of contact, especially venereal prophylaxis. (4) Those that exact punishment."

Colonel Ashburn believes from the replies to his questionnaire that approximately one-third of the men abstained entirely from sexual intercourse while in France and that another third indulged so infrequently as to make the chance of venereal infection small. Next to chastity, prophylactic treatment was, of course, most effective in reducing venereal disease, the proportion of irregular contacts to cases of venereal disease being about 30 to 1 without, and 90 to 1 with, prophylactic treatment.

Recently Dr. J. E. Moore[2] has presented detailed and convincing evidence in regard to this last factor of venereal prophylaxis, based on a very careful analysis of the experience obtained in the district of Paris, where the problem was of course a peculiarly difficult one. In this district the suppression of prostitution was almost impossible and the large number of "casuals" in the city on leave or passing through, so hampered the carrying out of the first two of Colonel Ashburn's measures that prophylaxis proved the largest single factor in the control of venereal disease. The excellent records of prophylactic treatment which were kept made it possible to check up the claims made by infected men as to previous prophylactic treatment and showed that instead of 40 per cent of all cases in the Paris District developing after prophylaxis, only 15.2 per cent of the cases so developed, and in 9.6 per cent of these cases prophylaxis failed because of the patient's own fault (delay in taking treatment, etc.). Only 5.6 per cent of the cases developed after efficient prophylactic treatment and Dr. Moore estimates that this represents an efficiency of 99.6 per cent for venereal prophylaxis, based on the group of exposed men who received the treatment under fair test conditions. EDITOR.

2. Cummins, S. Lyle: Tuberculosis in Primitive Tribes and Its Bearing on the Tuberculosis of Civilized Communities. International Journal of Public Health, 1920, Vol. I, Sept., pp. 137.

1. Ashburn, P. M.: Factors Making for a Low Venereal Record in the American Expeditionary Forces, J. Am. Med. Assn., Dec. 13, 1919, lxxiii, pp. 1824.

2. Moore, J. E.: The Value of Prophylaxis Against Venereal Diseases, J. Am. Med. Assn., Oct. 2, 1920, lxxv, pp. 911.

The Bureau of Chemistry, United States Department of Agriculture, reports a larger number of seizures and prosecutions on the charge of false and fraudulent labeling of proprietary preparations during the past year than in any other year since the enactment of the Federal Food and Drugs Act.

DR. RENE SAND

Press Illustrating Service.

The many friends in America of Dr. René Sand, professor of industrial medicine in the University of Brussels, Belgium, will welcome the publication of his work on "Organisation Industrielle Médecine Sociale et Education Civique," which is the result of studies made on trips to England and to the United States on official missions during the war. This material he has brought together under three main subdivisions, the first tracing the development of industrial medical service, the second dealing with state and civic medical problems, and the third outlining educational facilities. The book is a much more comprehensive survey of the subject than we have made of our own institutions and will be fully reviewed for the benefit of the readers of MODERN MEDICINE.

THE EXTENSION OF MEDICAL SERVICES

By J. MIDDLETON MARTIN, B.A., M.D., County Medical Officer of Health and School Medical Officer, Gloucester, England

IT has long been recognized that "the organization of medicine has become insufficient and that it fails to bring the advantages of medical knowledge adequately within reach of people." The words quoted are taken from the Interim Report of the Medical Consultative Council for England to the recently formed Ministry of Health, and the circumstances leading to this opinion probably exist in all countries.

In England the position has become more complicated owing to responsibility for the treatment of various affections and of various groups of the community having been taken over by the Government and distributed amongst different Government departments and different local authorities: of these conditions a long list might be made and may here be instanced by the system of medical care of insured persons, the schemes for the treatment of tuberculosis and venereal diseases, and for the medical supervision of children attending public elementary schools.

Effective for the Community

The Consultative Council in their report deal with the matter in the broadest possible manner and outline a service which would undoubtedly result in the great resources of medicine and surgery being used much more effectively for the benefit of the community than is practicable under present conditions of individualistic work.

Quite shortly, the effect of their proposals would be to secure coordination and development of all existing agencies whereby medical practitioners at the periphery will be kept in close relationship with the resources not only of the large general hospitals and their staffs, but also of the specialist hospitals and services; whereby, as a corollary, each patient will be readily brought to the source where he can receive the particular treatment his condition requires. Throughout their report the Council have in view the necessity of early and preventive treatment which is essential if the science of medicine is to justify its existence and if the community is to reap full advantage of medical progress.

These objects they aim at achieving by a coordinated service admirably illustrated in the diagram: in this diagram are shown as the center the very fully equipped large General Hospital—with all its specialist services—in touch with the teaching hospital, which is often a university, on the one hand, and closely linked on the other to various smaller centers which are equipped according to their varying needs in the towns and villages in the neighborhood. At the latter, described as Primary Health Centers, the medical services will be given by local practitioners, and specialists from the Secondary Health Center—the large General Hospital—will there attend patients in consultation on cases with the practitioner.

The Council state that "the scheme may be usefully illustrated by taking the actual example of Gloucestershire, where the local authorities in the county and its towns, the hospital authorities and all the doctors have agreed on a plan of services not dissimilar in its aims to the one set forth in this report." The scheme referred to is known as "The Gloucestershire Scheme for the Extension of Medical Services" which has been approved by the Ministry of Health and is now being brought into operation. The principle of the scheme was first put forward in April, 1918, in response to a request from the Ministry of Pensions for suggestions for the more adequate treatment of soldiers and sailors, and has developed to enable the County Council to carry out its obligation to provide treatment in connection with (1) venereal diseases, (2) tuberculosis, (3) school children, and (4) maternity and child welfare.

The diagram shown explains the proposals concisely, and in the scheme it is shown how readily its scope can be enlarged to include any branch of medical work.

The fundamental centers of the scheme are the General Hospitals at Bristol, Cheltenham, Gloucester, and Stroud; and the county is divided into four corresponding hospital areas: in suitable positions in these hospital areas, centers for out-patient treatment—described as Hospital Out-Stations—of a comparatively simple character in the first instance, with waiting room, consulting room and dressing rooms, are being arranged so that when all fifty-two are opened there will be one within, on the average, three miles of every part of the county. These will be equipped as simply as possible, and the resources gradually improved as circumstances show the desirability: beds will be added in suitable cases. Wherever possible, the Out-Station will be attached to a Cottage Hospital, of which there are eleven in the county, or will be made the residence of the district nurse.

Local Practitioners Serve

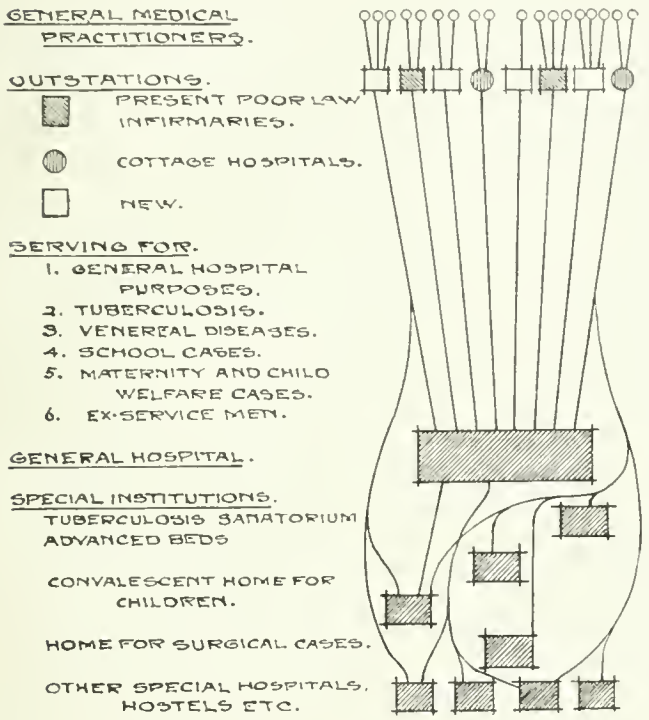
The personnel will consist of the local practitioners, who will each take duty for six months in turn, and, instead of working independently—as under present conditions—they will have at their backs all the resources of the General Hospitals, including the staffs, members of which will attend at the Out-Stations for consultation on cases with the medical officer at each. Ambulance service is proposed for the General Hospitals and suitable cases will be sent readily to specialist institutions. District nurses will act under the instructions of medical officers. The alternative is the development of the system of appointing whole time officials for each service—venereal diseases, tuberculosis, school children, etc.—as each new branch of work is undertaken by the community; but it is strongly felt that the extension of this practice would tend to depreciate gradually the standard of medical services in the country.

Very important features of the Gloucestershire Scheme are the arrangements for its management. It is controlled by a Board of Management under the County Council, consisting of representatives of the Council and of the hospitals, which has a strong Medical Advisory Committee, formed of representatives of the hospital staffs and out-station medical officers in equal numbers.

Earlier in these notes mention was made of the numbers of authorities and bodies concerned and one of the chief initial difficulties was securing the concurrence of government departments, local authorities, hospitals, and medical practitioners. That the cooperation of all was secured shows that the scheme is recognized as being on sound lines; but, in so far reaching and, to a certain extent, such revolutionary proposals there remain the difficulties of practical working of a pioneer scheme to be overcome.

These are being approached in so enthusiastic a spirit by all concerned that there can be no doubt but that they will be surmounted as successfully as the initial difficulties. Indeed, one very great advantage of the scheme is the close association of all medical men—consultants and general practitioners—with one another, from which incidentally there must be important consequences in the direction of improved medical service generally.

GLOUCESTERSHIRE SCHEME FOR EXTENSION OF MEDICAL SERVICES.



J. M. M.

COUNTY MEDICAL OFFICER OF HEALTH.

The problem of medical care for the scattered populations of county areas is very different from urban conditions, under which it is possible to extend medical service by so simple a means as the opening of a treatment center and appointing a suitable officer. County conditions make it necessary that all, or at least the greatest number, of the persons resident in the area can attend the centers. Obviously, the primary centers must be equipped to handle all classes of cases, the examination and treatment of the special groups being provided for by the attendance of specialists, who are regularly available in the way of consultation. Existing machinery is, of course, taken advantage of in the development of schemes.

Briefly, the Gloucestershire scheme consists in the opening of out-patient departments at eleven Cottage Hospitals and forty-one new out-stations of the general hospitals, somewhat on the lines of existing tuberculosis dispensaries with consulting room, waiting room, and dressing rooms, so that one will be accessible within a radius of about every three miles of the county, at which stations the out-patient treatment of all the special classes of persons for whom provision is made at the public expense will be available for all the people.

The utility of the out-stations will be increased by making them available, by arrangement with the County Council, for such other medical services as out-patient treatment and consultant service under the National Insurance Acts. In addition to medical services, intermediate treatment will be given by nurses in school cases, etc.; by trained orderlies for venereal diseases; and by masseurs and masseuses for ex-service men as needed. The machinery thus created lends itself to expansion for the provision of other medical services, e. g., extended treatment of insured persons; general treatment of persons such as can be given at out-patient departments of hospitals, and schemes for the care of the sick and infirm. For the fullest advantage to be derived from the scheme, ample opportunity should be afforded for the pathological and bacteriological examination of specimens, for which purpose close association with a well equipped and efficiently staffed laboratory is essential. The scheme would be incomplete if it did not from the outset embrace provision for linking up all existing specialists' services, institutions, and special hospitals. Very important branches to be developed must be research and prevention, and in this connection may be mentioned abnormal mental development for which less has been attempted than for many other conditions and diseases. Such a scheme of the Medical Consultative Council as outlined health organization in connection with which all medical officers and nurses engaged therein should have definite health functions.

The chief arguments that have been urged against the scheme of the Medical Consultative Council as outlined in their Interim Report are that it is impracticable and that the cost will be prohibitive. That neither objection is sound is shown by the fact that effect is being given in Gloucestershire to the scheme above outlined similar in its essentials to that foreshadowed in the Interim Report.

AREAS AND DATA PERTAINING TO HOSPITAL DISTRICTS

Hospital District	Area in Acres	Houses	Population	No. of Centres (Hospitals and Out-stations)*		Approximate average per Centre (Hospitals and Out-stations)				
				Total	Immediate	Area		Radius of circle in miles	Houses	Population
						Acres	Sq. Miles			
Cheltenham—										
Home District	275,094	24,036	105,188	14	7	19,630	30.7	3.13	1,719	7,510
Cirencester Sub-District	116,561	6,363	27,215	7	3	16,650	26.0	2.88	909	3,890
Total	391,655	30,399	133,403	21	10	18,630	29.1	3.04	1,450	6,300
Gloucester	225,419	20,774	92,564	17	10	13,250	20.7	2.57	1,220	5,450
Stroud	39,987	9,798	39,866	5	4	7,997	12.5	1.98	1,960	7,973
Bristol	128,955	14,422	64,181	12*	9	10,746	16.8	2.51	1,204	5,350
Administrative County	786,016	75,413	328,014	55	33	14,300	22.4	2.67	1,370	5,980

*Excluding General Hospitals.

The fundamental centers of the scheme are the General Hospitals at Cheltenham, Gloucester, Stroud, and Bristol. Suitable positions for the Primary Health Centers being determined by the needs of each particular district.

THE PUBLIC HEALTH MOVEMENT IN THE LIGHT OF MODERN PSYCHOLOGY*

By DONALD B. ARMSTRONG, M.D., and EUNICE B. ARMSTRONG, M.A., Framingham, Mass.

BACK in 1908 or thereabouts the New York Health Department first published the slogan "Public Health Is Purchasable." Still earlier the slogan "Tuberculosis Is Preventable and Curable" had been spread across the country. Both these campaigns of education were founded on the idea that if the public knows the facts it will take proper action,—a trust in information and in the success of a reasonable appeal to the intelligence of the public which continues to inspire as many campaigns of education as ever, and to which the partial or complete failure of those same campaigns is due.

The newer psychology more and more points to a definite basis of reaction and promises possibilities in the way of definite prediction in matters relating to human conduct.

The heterogeneous materials of the unconscious mind, through processes of unconscious mentation, are continuously being organized, forming the bases of the physiologic "sets" which control impulsive action.

Full fledged opinions, ready made and serviceable, may evolve; or skulking desires but imperfectly suppressed, may evade the censor and motivate unsocial reactions.

The control of individual or mass response depends upon making the appeal on the save level at which the resistance has arisen.

Large public health budgets have not become too easy to obtain. We persist in a willingness to spend more for a battleship which will be scrapped before it is used than for the assurance of protection against typhoid fever. Knowledge of the measures of personal hygiene which will largely prevent infection has not even halved the death rate of the preventable infectious diseases. Our most successful health campaigns have often been carried out autocratically, by military governors, with no appeal to the intelligence of the population concerned.

Cannot Compel a Health Democracy

Yet we cannot compel health in a democracy and, if intelligence alone in a democratic population does not suffice, how is our increasing knowledge of measures for health to be put to work?

The constant need for trained men for public health administration is gradually being supplied, but that alone will not greatly improve public health. Even with the knowledge and the men now available, our health conditions are at least 50 per cent below what they should be if our existing resources in men and information were fully utilized. It is not enough to increase the supply of health goods. They are useless unless the public purchases and uses them. How can this be accomplished? Has it been accomplished in the past, and if so, how?

Certain campaigns of health education have produced the results expected. They have been no more reasonable than others which have failed. Yet they have won the cooperation of the public; and so, and not otherwise, can a democratic health or social program be effected. The Red Cross during the war was a social agency, depending for success here on voluntary cooperation. It succeeded. The anti-venereal work in the army was part of a program of health education, depending for success largely on voluntary cooperation. It succeeded, beyond the hopes of its authors, and in spite of the hostility or skepticism of its many opponents.

Are the factors of these successes obvious? If the successful executives named the qualities responsible for their success, could not the heads of work less successful point logically to exactly those same qualities in their work? Yet successes and failures come not by accident. The successful health administrator of the future must be trained consciously to recognize and use those fundamental factors of success now often used unconsciously.

The day when mechanical reforms were the principal health problems is past. The idea of the necessity of a safe water supply has been sold to the people of our towns. Safe sewage disposal has become a prerequisite to a city. The time when the health expert should be merely a sanitary engineer is gone. Even he was dependent upon public sympathy before he could get funds with which to begin his work.

The solution of most of our remaining health problems depends on the successful carrying out of a program of personal hygiene by social engineers, and such a program depends on the cooperation of individuals. Success in health work depends, then, on gaining cooperation. Within the last decade remarkable discoveries have been made of methods of obtaining human cooperation.

The evolution of human thought seems to conform to the Lamarkian theory of physical evolution. Human knowledge has not been accumulated in a series of infinitesimal steps, but rather in spurts, each one accelerating suddenly the growth of the whole body of thought. Such was the discovery of evolution by Darwin and of the circulation of the blood by Harvey. The latest leap in human knowledge is the discovery of previously unknown mechanisms, the understanding of which makes possible the analytical method of psychology. Psychology before this discovery was comparable to physiology in the days preceding our knowledge of the circulation of the blood, when the main basis of physiology was anatomy learned from the cadaver. In the same way our earlier psychology was based largely on a study of brain structure. Analytical psychology deals with the mind in action.

The new theory, briefly summarized, is merely this: Human action more often results from unconscious impulses than from ideas. "These unconscious impulses act like a magnet placed under a paper on which are placed iron tacks. The tacks move when the magnet is moved but the magnet, the force which causes the tacks to move, is not visible."

No attempt to prove this should be necessary, for there is a sufficient and convincing literature; but the best evidence that an awareness of the importance of unconscious measures *pays* is the fact that when these motives are even accidentally appealed to, in dealing with individuals or groups, purposeful and vigorous and effective action results. Later we shall analyze the success, for instance, of the Red Cross in the terms of modern psychology; now we merely outline its principles, and indicate how their application may serve to increase

*The first of two articles on this subject by Dr. Armstrong, to be presented in successive issues of Modern Medicine.

human health. We shall attempt to turn the Freudian complexes into simplexes by using words with their usual meanings attached. With a necessarily arbitrary simplification we shall apply such terms as the unconscious, inertia, repression, conflicts, complexes, disguises, the pleasure of principle, the censor—the main definitions and findings of analytical psychology.

Emotions Energize Action

Action results usually from emotion rather than from ideas. The individual is often wholly unconscious of the motives which really generate his acts. Civilization demands rationalization of action even when the real causative emotion is socially acceptable. Many strong instincts, however, which crave satisfaction are no longer socially acceptable. The individual wants to obtain his satisfactions easily. He cannot obtain satisfaction for his socially disreputable instincts without a conflict with his environment. Therefore, to avoid this conflict, he denies to himself the existence of certain desires. He drives these desires back into the unconscious; but this unconscious personality is a savage. It wants the satisfaction of *all* its desires. It therefore disguises the suppressed desires and sends them back to the conscious, hungry, and ready to do damage if kept unfed. The common disguises hiding anti-social instincts are among the mechanisms discovered by the new psychology. The practical application of this psychology is the conscious appeal to the emotions rather than to the intellect when action is wanted. The many desires variously classed as good and bad can alike gain satisfaction in more than one way. The intelligent utilization of the emotions diverts their energy from useless or undesirable channels and provides for their satisfaction through action which is socially serviceable.

This analysis of the psychology of cooperation is undertaken in an attempt to show how understanding it may increase the success of measures for public health.

Any activity which provides means of satisfying fundamental desires will elicit support. Any activity which ignores or balks the satisfaction of instinct will arouse hostility. There are two parties, the workers and the population at large, whose cooperation and active support is needed in health work. The first, the workers involved, must include everyone from the executive to the members of the most trivial of local committees. The successful program will recognize that the job which offers satisfaction to the greatest number of instincts will obtain the best workers. For a century industry tried to get good work done merely by satisfying the workers' instinct for self-preservation; but hunger is only one motive, and even the promise of its most generous satisfaction does not win the full energy of a man. As a matter of fact, some of the instincts are capable not only of satisfaction but of satiety, and when this point is reached the offer of further satisfaction fails to generate any increase of motive power. The man who will work only three days a week when his wages for that time are enough to keep him for a week is a case in point. His instincts which require imagination have never been stimulated, and so his desires cease with a definite degree of material satisfaction. In most civilized men, however, there are instincts which satisfaction simply stimulates to increased demand. Among these are the instincts for self-sacrifice, praise, power, loyalty, participation, service, beauty and worship. In appealing to groups whose material instincts are with a fair degree of adequacy satisfied, the appeal should be directed to their imaginative or spiritual desires.

Indeed, the reason that the economic motive has loomed so large is not because the instinct of self-preservation is so dominant, but rather that through money we obtain the satisfaction of most of our desires. In lumber camps or places where conditions obtain that preclude the satisfaction of other instincts, such as to love and to play, high wages do not prevent dissatisfaction and the destructive use of energy which invariably follow the balking of instinct. It need hardly be pointed out that it has not been high wages that have procured the full energies of sanitarians and social workers. Their jobs must have given them other satisfactions.

It is comparatively easy to arrange a public health campaign which satisfies many of the desires of the people doing the work. It is far more complex to build a plan which will gain the cooperation of the outsiders, who are the very material of the plan, by offering them means of satisfying their underlying instincts. Perhaps the best single solution is to provide for participation; to give every person affected a job in the health campaign.

Health for Health's Sake Fails

It is certain that the average population, given a knowledge of personal hygiene plus an adequate income, will not necessarily live according to higher health standards. The health for health's sake appeal will fail. Information and opportunity are not enough to inspire the practice of personal hygiene. Look at us! Most of us continue to over-work, to over-smoke, to over-drink (until a recent memorable date), to lose sleep, and to take unnecessary risks of infection. Who are the people in a community who practise personal hygiene? The woman who is proud of her appearance and who is using it, consciously or unconsciously, to captivate the male, will starve herself to keep thin, will exercise when she hates it, and will practise many time-consuming and distasteful rules of hygiene. Why? She realizes that health is a pre-requisite for success at her job. We had in our Army during the war what was undoubtedly the greatest demonstration of personal hygiene ever made by any group. These men had enthusiasm for their job. They had a "will to health" and were willing to undergo the drudgeries of personal hygiene and sanitation for the sake of their work. Our public health problem is to make them as eager to be "fit to live" as we succeeded in making soldiers eager to be "fit to fight."

It ought to be easy to show that health will increase the possibility of satisfying desires, but it is the inherent tendency of men to accept incomplete or imitation satisfactions rather than to expend much effort to obtain full and genuine gratification. Nor does health make the same appeal to different people. The poor person wants health for economic reasons. He cannot afford to be sick. The economic motive in a rich person is satiated. Sickness, rather than health, may serve as a means of gratifying his less satisfied desires to receive additional consideration, and to become the center of his environment.

Dr. George E. Vincent of the Rockefeller Foundation, in a recent address at Johns Hopkins, spoke of the way "patriotic advertising men . . . 'sold' the War, Liberty Bonds, the Red Cross, and Thrift Stamps to the American people . . . by infectious slogans, adhesive shibboleths, vivid posters, and four-minute hypnosis. Certain *motor ideas* were fixed, and held in millions of minds until action was secured." From the means by which they were aroused, motor ideas and emotions seem almost identical.

In the same address, Dr. Vincent suggested that a school of preventive medicine might teach the "art of applied mass psychology, and consciously train men and

women to organize and administer campaigns of popular education in preventive medicine." Might not one, in such a course, asked Dr. Vincent, "imagine complete collections of posters, and other material, prize competitions for new devices and propagandist literature, training in extemporaneous speaking etc.? . . . A fascinating vista opens before men and women of trained intelligence, controlled imagination, and social loyalty," in the field of Public Health.

Knowledge of analytical psychology will aid in developing that "trained intelligence," that "controlled imagination," and that "social loyalty" for health itself, and, also, the practical carrying out of a health campaign must offer fundamental emotional rewards or the structure will be crumbling dust instead of a living, growing thing. First, of course, the health expert must know the instincts needing satisfaction. But this is not a matter of mere cataloguing and memorizing.

The Materials of the Unconscious

Our instincts have been acquired over a long period of time. The unconscious is the common human denominator of us all. It acquires new instincts only after centuries of habitual performance by the conscious self. It does not discriminate between its impulses. Its job is to see that any balked instinct is satisfied. This no doubt is why the sex impulse has been disproportionately emphasized in the popularization of the new psychology, for it is often in conflict with our present moral codes, and so perhaps is most often repressed, thus causing obvious trouble.

But many other motives are in conflict with socially approved values. What desires are forbidden, and therefore result in a conflict, vary in different societies and times. A head-hunter would not need to repress the desire to kill a neighboring chieftain and take his wife. Such a desire would be the extreme of good form for him. But he could suffer as intensely from his tribes taboo on black bass, resulting in a conflict between his desire to conform and his desire to eat, as the civilized man from an occasional hunger for his neighbor's wife, such impulses conflicting with his desire to conform to society's standards.

Speaking generally, however, altruistic motives have expanded while selfish motives have depreciated in the course of civilization. It is, then, the primitive, necessarily selfish, desires which society tries chiefly to balk.

The force expended by the conscious self in repressing disreputable desires, and the force expended by the unconscious in trying to get satisfaction for them, constitute a double stream—a fountain of energy which the successful seeker after cooperation must use. He must recognize that it is only socially accepted motives to which he can appeal directly. The war permitted frank appeals to emotions not previously in good form, but their rehabilitation is not being maintained. The adequate health worker must free himself from the habit of invidious discrimination. He must know that it is as serviceable to divert the energy of a selfish impulse to social ends as to use the energy of the remaining legitimate instincts; but he must take care to cloak the appeal to an instinct of ill repute in the form of an appeal to reason, so that his hearers may be spared conscience conflicts and may continue to conform to the idea that they act rationally.

The etiquette of altruism must also be conformed to. Some of the greatest advances in public health work have been made at the initiative and with the financial aid of commercial concerns, such as life insurance companies and industrial corporations. These agencies, at the demand of the group censor, have displaced their entirely justifiable selfish or economic motive with a correct altruistic symbol. In place of health for profit or for general economic welfare, we have "Life Saving Campaigns," "Live a Little Longer" movements, "Health First Campaigns," "Clean Up Weeks," "Safety First Movements," etc. Thus is the censor satisfied and the conflict eliminated.

The conscious and the unconscious have a common motto: "Anything for a Quiet Life." So the conscious pushes down into the unconscious any desire which quarrels with its environment, and puts a guard at the door of the unconscious. This guard the psychologists call the censor. But the unconscious finds a repressed desire impossible to live with. So it teaches the repressed desire how to avoid the censor and how to go back where it can get what it wants, by disguising itself "very much as the Mexican revolutionist who wants ammunition crosses the border disguised as a peasant woman."

The illustrations which the psychologists cite of these disguised desires seem unsound, on first impression, for the very reason that the disguise is effective. It is obvious that if a nun accosted you in a lonely street and asked for money for charity, it would be important to know that beneath the nun's clothing was the body of a well known gangster. The importance in health work of knowing the common disguises which hide strong motives is equally obvious. For example, an intellectual and reasoned hostility to a health project may be the disguise of an unsatisfied instinct. Perhaps the man who objects to a school lunch on the ground of paternalism is merely concealing from himself his thwarted desire for selfish gain through the renting of his empty store as a lunch room near the new school. It is useless to present reasoned arguments to overcome his hostility. It is worse than useless to tax him with a cause for his hostility which his unconsciousness has disguised successfully in a garment of democracy and self-respect. He may entirely have forgotten the lunch room aspect, and disapproved the whole health and educational program on the ground that it destroys personal liberty and community autonomy. Sometimes an individual will go further than the mere rationalization of his antipathy and will fancy that the program he opposes contains all sorts of attacks upon his integrity or personal welfare. In this stage he is close to a paranoid condition, and will go any length in his vilification of the organization which, perhaps wholly unconsciously, interfered with his selfish satisfaction, in order to compensate for the persecution of which he fancies himself a victim. Unless his condition is too pathological, it may be possible to gain his cooperation by satisfying his desire for gain through modification in some part of the program which may be shown concretely to benefit him. His "reasoned" hostility will disappear, his maldirected energy will become available for the support of a program through which his personal gain may be assured.

The individual who develops such neuroses or psychoses is the neurotic with a characteristic and extraordinary sensitiveness to stimuli. He is the antivivisectionist and the leader in S. P. C. C. or similar activities, whose potential energy for good or evil is greater than that of the so-called normal individual.

There are groups as well as individuals whose inheritance and experience have made neurotic, and their extreme reactions should be considered. Any despised minority group is forced to compensate itself; the osteopaths, the chiropractics, and even some homeopaths still necessarily hate the "old school" far more than the majority

group has sensitiveness to hate or otherwise unfavorably regard them. Disguises are used not only by the individual but by the group. Many organizations are unwilling to sacrifice any of their power or emoluments for the common good. Custom does not permit them to admit their selfishness; so they disguise it by projecting it upon the organization they oppose. In a middle western town there exists an official health body with a conspicuously limited vision, characterized by fearfulness, oppositionism, and vanity. It devotes its vigor to accusing the organization which desires to cooperate of exactly its own pettiness, narrowness, and greed.

It would be both useless and endless to discuss the various instinct-energies which may be directed toward social cooperation. The disguises commonly worn to avoid social disapprobation are well described elsewhere.

The new psychology has a definite part in the equipment of a leader in a democracy. It is easier to direct human activity if one knows its sources. Hostility may be more easily used than indifference, for in the former an emotional connection already exists between the person and the work, and the energy represented by hostility may often be sublimated into a serviceable activity.

(To Be Continued.)

PERSPECTIVE IN DIAGNOSIS OF PULMONARY TUBERCULOSIS*

By MARY JONES MENTZER, M.D., San Francisco, Cal.

THIS study, a presentation of facts derived from the study of one hundred cases, is limited to incipient pulmonary tuberculosis in young working women, who have been under our personal care at Arequipa Sanatorium, and who have been examined by at least three physicians of the medical staff of the institution.

Arequipa Sanatorium, located in the hills of Marin County, Cal., is established to provide at minimum cost the best type of institutional care and scientific treatment for early cases of pulmonary tuberculosis in young wage-earning women.

Each of the one hundred cases included in this study has been analyzed from the standpoint of history, symptomatology, physical, x-ray and sputum examinations, and from these analyses have been compiled the data shown in the accompanying charts.

Scheme of Study

The history, when indicated as positive in the charts, signifies that the patient has had close contact with the tuberculous or has had some of the predisposing diseases, such as measles, whooping-cough, pneumonia, or pleurisy with effusion, or has presented what we have termed a suspicious state, *i. e.*, so-called "fever" or illness often designated by the patient as "malaria," or recurrent attacks of influenza, a tendency to constant colds, or tuberculosis elsewhere.

As shown on Chart IV, 55 per cent of the cases gave a history of exposure, 80 per cent a history of predisposing diseases, and 54 per cent the so-called suspicious state—in all, an average of 63 per cent with a positive history.

Persistent latent râles, or latent râles with dullness, are the minimum findings upon which the physical examination has been designated positive. In 87 per cent of these incipient Arequipa cases the physical examination was positive.

In this series the x-ray plate is rated positive only where the infiltration is peribronchial or is in the parenchyma of the lung. Plates showing enlarged root glands and hilus changes only have been excluded. When it is considered that radiologists generally agree that the hilus shadow is abnormal at an early stage of tuberculosis and also that 125 autopsies at the Foundling Hospital, New York, showed bronchial gland tuberculous in every case, it would seem that our classification of plates has been conservative. The x-ray plates were considered positive in 84 per cent of cases.

The figures indicating positive results in microscopic examination of the sputum cover only the examinations made at the time of entrance to the sanatorium. Twenty of these examinations showed tubercle bacilli.

Klotz[1] tells us that the medical reports of numerous tuberculosis sanatoriums show that in an average of only 50 per cent of cases, including all stages, are tubercle bacilli found in the sputum. Watson,[2] of Mount Regis Sanatorium, Virginia, states that of fifty-nine incipient cases admitted to that sanatorium, only two showed positive sputum after repeated examination. Heise[3] records tubercle bacilli found in the sputum before entrance to the sanatorium in 8 per cent of the peribronchial and in 13 per cent of the parenchymatous types of cases of all stages.

*Read before the Southwestern Tuberculosis Conference, Long Beach, Cal., October 1-3, 1919.

1. Klotz, Walter C.: Syphilitic and Tuberculosis Pulmonary Lesions, California State Jour. Med., 1918, xvi, 82.
2. Watson, E. E.: Incipient Tuberculosis, Va. Med. Semi-Month., 1917, xi, 451.
3. Heise, F. H., M.D.: Twenty-fourth Annual Report of the Trudeau Sanatorium, 1918.

Chart I—Symptoms in Order of Frequency

Loss of weight	91
Ease of fatigue	79
Cough with sputum	75
Chest pain	58
Slight fever	50
Dyspnea	43
Night sweats	32
Laryngeal symptoms	31
Recent Menstrual changes	28
Hemoptysis	28
Cough of more than three weeks without symptoms	23
Gastro-intestinal symptoms	11

Chart I enumerates the various symptoms ordinarily ascribed to this disease and the number of cases in which each was found. Loss of weight proved to be the most constant symptom, occurring in 91 per cent of the series, while gastro-intestinal disturbances were of least frequent occurrence, even less than hemoptysis, which may be unlooked for in view of the fact that we are discussing first stage cases only. Infrequent as the gastro-intestinal symptoms would seem, Cabot has warned us to suspect tuberculosis as a cause of the unexplained indigestion coming in a person who has not changed his diet or his work, who is not anemic or nephritic, or overwhelmed by mental torture or worry. This same authority calls attention to the importance of early hoarseness of voice in the diagnosis of tuberculosis. It occurred in 31 per cent of our cases.

Fever, so often the criterion of the average examiner's diagnosis of tuberculosis, was found in only half of our number and in only 3 cases was it the first symptom noticed in the illness. Osler[4] quotes Reinhold who years ago wrote of afebrile form of tuberculosis, and cited nine of a series of 52 cases as showing no fever. Osler tells of having 18 instances under his own observation, 10 of whom were free from fever. This chart is interesting also in the large number, 58 per cent, showing chest pain, and in the frequency of dyspnea, 43 per cent, as symptoms in early tuberculosis.

Chart II summarizes the result of study of these one hundred incipients with reference to the presenting symptom, or in other words, the first complaint noticed in the illness. Here, as one would expect, ease of fatigue leads, while hemoptysis is least frequently found as the initiatory symptom of pulmonary tuberculosis. Some interesting facts are emphasized by the other components of this chart, *e. g.*, the diagnostic significance of unproductive cough. Cough of more than three weeks duration unaccompanied by sputum occurs in only 23 per cent of this series, and yet in almost all of 18 per cent showing this sign it is the first symptom of which complaint is made. Unproductive cough in nonsmokers should lead one always to suspect tuberculosis.

Chart II—Presenting Symptoms

Ease of fatigue	27
Cough with sputum	25
Cough more than three weeks without sputum	18
Chest pain	14
Loss weight	8
Slight fever	3
Gastro-intestinal symptoms	3
Dyspnea	1
Hemoptysis	1

Again, we note the high percentage of the disease initiated by chest pain, while loss of weight, the symptom most commonly found, is rarely a presenting one. Like fever, it is seldom the initial complaint. Menstrual change, night sweats, and laryngeal symptoms were not noted primarily.

In Chart III we have attempted to reproduce graphically the basis upon which a diagnosis of tuberculosis was made in our own series of cases. It will be seen that in 15 per cent of the cases, all the various diagnostic methods employed were positive; symptoms, history, physical, x-ray and sputum examinations—all were positive. In 63 cases 4 factors were positive. In 60 of these the sputum only was negative, in one the x-ray was negative, in one the physical examination, and in one the history was negative. In 17 the symptoms and history with either physical examination or x-ray were positive. In 5 cases a very definite history of exposure was coupled with symptoms of sufficient significance (Chart I) to warrant the diagnosis of tuberculosis. These are the cases where the subcutaneous or intradermal tuberculin tests are of value.

Chart III—Basis of Diagnosis

Symptoms	History	Phys. Exam.	X-ray	Sputum		
+	+	+	+	+		15
+	+	+	+	—	60	
+	+	+	—	+	1	
+	+	—	+	+	1	
+	—	+	+	+	1	63
+	+	+	—	—	10	
+	+	—	+	—	7	17
+	+	—	—	—		5

It is said that positive factors alone in medicine have an absolute value. The percentage of positive evidence obtained from the various diagnostic methods employed in this series of cases is shown in Chart IV.

CHART IV—RELATIVE VALUE OF DIAGNOSTIC METHODS

Positive physical examination		87
Positive x-ray examination		84
Positive History:		
Exposure	55%	
Predisposing Disease	80%	
Suspicious State	54%	63
Positive sputum examination		20

In the 100 cases presenting themselves because of the symptomatology, physical examination proved of most value in supplying definite evidence of tuberculosis, being positive in 87 per cent, x-ray examination in our work was somewhat less valuable; history was helpful, while the inconclusiveness of examination of the sputum, already referred to, is emphasized by this analysis.

Brown[5] would seem to place the highest value upon the x-ray plate. His comparison of results obtained by physical examination alone with those obtained by physical examination combined with roentgenographic examination shows that the x-ray plate led to the detection of 0.2 per cent more men with tuberculosis than were discovered by careful physical examination. However, we realize that these results were obtained from examination of recruits in whom little if any account is taken of symptomatology or history. Also it is obvious that it is easier to standardize x-ray plates than personal equations in physical examinations. We agree with Pottenger[6] who says that small, early lesions may not always cast a sufficient shadow to be recognized in the x-ray plate, and who concludes that all data found in physical examination when added to the clinical history make clear the nature of the process.

Hawes[7] writes that x-ray evidence should always be subsidiary to a careful and painstaking examination of the patient, his lungs, his history and particularly his constitutional symptoms.

Summary and Conclusions

In making a diagnosis of tuberculosis, especially in difficult instances, one must carefully weigh the many points in symptomatology and history, together with those in the physical examination and in the x-ray plate, as well as the laboratory tests. There is no single positive standard that can be made to cover the diagnosis of pulmonary tuberculosis in every case. It cannot be made from symptoms alone; but even the absence of demonstrable physical signs will not eliminate pulmonary tuberculosis when the symptoms are significant. The x-ray aids in doubtful although possibly not in the earliest cases. The presence of tubercle bacilli in the sputum decides the diagnosis, their absence of course being meaningless; nevertheless it is the combination of both signs and symptoms that is the surest guide. It may therefore be concluded:

(1) That loss of weight, ease of fatigue, and cough with expectoration are the most constantly occurring symptoms of pulmonary tuberculosis.

(2) That ease of fatigue and cough with expectoration are most frequently the earliest symptoms noted in the disease.

(3) That the basis of diagnosis in these cases comprised a combination of symptoms and history coupled most frequently with positive physical examination and positive x-ray plate.

(4) That with symptoms indicative of tuberculosis, physical examination affords the most evidence of any of the various diagnostic procedures.

4. Osler, Sir Wm.: Modern Medicine. Its Theory and Practice. Lea & Febiger, Phila., 1913.
5. Brown, Lawrason: Pulmonary and Pleural Annular Radiographic Shadows, Am. Rev. Tuberc., 1919, ii, 664.
6. Pottenger, E. M.: Diagnosis and Treatment of Tuberculosis. Jour. Iowa Med. Soc., 1917, vii, 329.
7. Hawes, John B., II: Remarks on Tuberculosis. Bost. Med. & Surg. Jour., 1918, clxxviii, 589.

LOS ANGELES HEALTH ADMINISTRATION

Los Angeles County, California, has adopted a community form of management of joint public affairs that includes the administration of the health departments of its various units. Within the county, with its four or five thousand square miles, are thirty-seven incorporated cities running in population from 500 to nearly 700,000, each of which was formerly independent, with its own machinery for administering its business. With the authority to combine, the county has carefully looked over the different functions, and in those cases where county management proved to be a real economy, has assumed their management. It is now administering such matters as charity, tax collection, public libraries, horticulture, and public health.

Three cities in the county now carry on through the county the work formerly performed by local health officers. It has a number of advantages, among them that of a diminution of multiple taxation that has proved in such instances to be such an economic waste. The county health department now includes a bureau of twenty-six persons besides the health officer. They are employed under civil service rules. The principal office is in Los Angeles, with branch offices established in different places. Cooperation is effected with the school department in the joint employment of nurses. The appropriation, which in all amounted to about $6,000 before 1915, now stands at $60,000.

PROBLEM OF DEPENDENT VETERANS

Dr. W. C. Rucker, chief medical advisor of the Bureau of War Risk Insurance, states that there are 641,900 veterans of the World War who have been discharged from the Army and Navy with disabilities, or who are now under care. The estimated bounty for the care of these dependents is stated to be $325,000,000 annually.

PUBLIC HEALTH NURSING

Industrial, Social, School, and Rural Nursing, Maternity Care, Child Welfare

KATHERINE M OLMSTED, R. N., *Editor*

FEDERATION BECOMES POPULAR

IN JUNE there were held in Chicago meetings of far reaching importance to those engaged in the public welfare service, in which steps were taken to promote the organization of a federation of all national bodies interested in the administrational problems of eleemosynary institutions. At this meeting two national organizations were in joint session, the American Association of Public Officials of Charity and the National Association for the Study of Neglected, Truant, Delinquent, and Dependent Children. Thirty-five states were represented in the registration, and every session was well attended.

The most conspicuous feature of the gathering was the pronounced sentiment in favor of a plan whereby all national organizations in which these officials are interested may meet at the same time and in the same place. A committee of three from each Conference was appointed to give this matter consideration and to submit it to various organizations which might be interested.

Such a plan would simplify the problem, which has become onerous of late, growing out of large number of organizations, a part of whose activities deal with common subjects. Under the proposed arrangement those who want to attend several meetings could do so on the one trip, and all would reap the benefit of the important developments of any meeting, which are largely those of the lobby and the social contact.

The Committee appointed to take this matter up with various organizations has been at work, the idea meets with general favor, and the prospects are that something definite and beneficial will result.

A movement in harmony with this coordination program of the social organizations was manifested by the national health agencies in a conference called on October 18, 1920, at the Red Cross Headquarters in Washington, where a full and intimate discussion of the possibilities of coordination was carried on by the leading health executives of this country.

Dr. Livingston Farrand of the American Red Cross was elected temporary chairman and Dr. Donald B. Armstrong temporary secretary.

The purpose of the conference was to determine the advisability and feasibility of developing more effective cooperation between voluntary organizations engaged in health work. It was the unanimous opinion of the members of the conference that a formation of a National Health Council, whose fundamental purpose should be to coordinate the activities of national voluntary agencies, is eminently desirable and entirely feasible. The object of the National Health Council would be the betterment of health work in the United States, through a close coordination of the activities of the voluntary health organizations of America, and through such affiliations as may not be incompatible with the autonomy of these organizations.

To meet this object, it was proposed that a National Health Council be formed, the charter members of which would be the following organizations:

American Medical Association.
American Public Health Association.
American Red Cross.
American Social Hygiene Association.
Conference of State and Provincial Authorities of Health in America.
International Health Board of Rockefeller Foundation.
National Child Health Council.
National Committee for Mental Hygiene.
National Organization for Public Health Nursing.
National Tuberculosis Association.

It was further suggested that from time to time other voluntary health organizations might be invited to become members of the Council.

The activities proposed for the central organization would include: (1) a central information bureau, (2) a legislative committee, (3) coordination of health statistics, (4) periodic conferences, (5) coordination of state and local health organizations, and (6) the publication of popular health literature.

National nursing organizations have already made effectual steps toward the unification of societies and services, and the three national nursing organizations—the American Nurses' Association, the League for Nursing Education, and the National Organization for Public Health Nursing—together with the American Red Cross, have opened joint headquarters at 156 Fifth Avenue, New York City. They have already instituted a national movement which will continue indefinitely, for the purpose of recruiting students to fill the hospital training schools, and to distribute information relative to nursing education and opportunities open to graduates of the profession.

The coordination of child health activities has been accomplished in the Child Health Council, with headquarters in Washington, under the secretaryship of Mr. Courtenay Dinwiddie.

Workers in the several fields have long felt the need of getting together on the fundamentals of health campaigns. Not only is this indicated in the interests of economical administration, but methods, whether medical or social, need to be scientific and they must be comprehensive. We need everywhere to break down all that may remain of professional aloofness and to work out together the ideals of community service. This is possible only through well planned cooperative effort. EDITOR.

PUBLIC HEALTH WORK FOR COLORED IN THE SOUTH

Contributed by the Department of Nursing, Southern Division, American Red Cross, Atlanta, Ga.

THE subject of Public Health Nursing for the colored people of the South presents some interesting problems which deal basically with the education of the colored nurse doing the work and of the members of her race for whom the work is done.

To the older residents of the South the health problems of the negro have become immensely complicated by modern conditions. During the days before the war between the states there were few problems having any connection with the subject; then it was believed that no negro ever had tuberculosis; few, if any, ever had yellow fever even when it was raging during the most virulent epidemics, and the chief ills from which the negroes suffered were "chills and fever," or what we now know as malaria, and from accidental injuries or natural causes. Of the latter, childbirth may be said to be the main "natural cause," and the percentage of deaths of either mothers or babies was relatively so small as compared with present day rates that it was almost negligible.

Wants a Nurse of His Own Race

In those old days public health nursing was unknown; the plantations of the south were filled with hundreds of negroes in good health, usually, and always directed and supervised by the owners of the land and of the laborers. Quinin, calomel, paregoric, and epsom salts were purchased in gigantic quantities and dispensed with equal liberality. A regular part of the day's routine for the "Marster" was the dispensing of these drugs which delighted the hearts of the negroes. With freedom, came the first inroads of deadly diseases; the wholesome outdoor life of the plantation was changed for the crowded and

These three women are Public Health Nurses, the one on the left a tuberculosis nurse, on the right a nurse in the service of the Metropolitan Life Insurance Company, and in the center a charity nurse with the Collins Board of Health.

unspeakably insanitary life of the cities; poverty, poor food, venereal disease, unaccustomed kinds of labor, all combined to lower the vitality of the negro with the result that for the first years following their freedom they died like sheep and no effort was made to check or change the conditions. Now, the awakened public conscience in matters pertaining to public health necessarily includes the colored with the white population; but, just as it has been determined by experience that the general educational problems of the negro must be solved by an adequate number of negro schools taught by negro teachers, so it is being more and more generally understood that the health

In a physical examination that included seventy children, only these four were classified as normal.

of the negro in his home must be guarded by the Public Health Nurse of his own color. The training schools for colored nurses are most inadequate as to size and enrollment and the supply of colored nurses is therefore limited; so limited, in fact, that few if any of the graduate nurses have been able to take regular courses in Public Health Nursing, and the nurses who have been selected for this work are those whose work will be so closely directed by a supervisor that the actual contact with the family life is the nurse's main contribution to the service.

This has been the method pursued in the South with the negro nurses employed and it has worked most effectively. As a matter of fact, the educated negro of today is markedly lacking in initiative and executive ability, but it is hoped and believed that these characteristics will develop with the added opportunity for the exercise of both qualities.

The colored nurses who are doing public health work for those of their own race are meeting with encouraging success and, while it is recognized that the work is in its infancy, it is worth while to record that the first halting steps are being taken, and that the development of this work will be delayed or limited only by the interest, the enthusiasm, and the support of both white and colored of the communities in which it is being undertaken.

The important part played in all southern communities by the negro cannot be too strongly emphasized. The negro cook, the negro nurse, the negro laundress are all in the closest possible touch with the homes of the South and, with the accepted theory of the spread of disease by contact, the menace of the unhealthy negro as a possible carrier of disease is one that cannot be overlooked, disregarded, or underestimated. It is, therefore, of gen-

uine interest to note the following reports made to the Red Cross by a few of the colored nurses doing public health work for those of their own race, for from these reports it will be seen that the colored people themselves, as well as the colored nurses, recognize the importance of the work undertaken.

Few Colored Nurses Available

In reviewing the situation in Georgia, Florida, Tennessee, North and South Carolina, the five states which com-

This class, 10 per cent under normal weight, are good subjects for nutrition work. A deficit of 7 per cent would be more promising.

pose the Southern Division of the Red Cross, it has been revealed that there are some half dozen colored nurses doing public health work, and that the most active of these nurses are keenly alive to the importance of their service and are anxious to receive any suggestions, instructions or supervision which can be furnished by the states and by the Red Cross.

One of the most active colored services undertaken is that in South Carolina, where the nurse, Ellen Woods Carter, is a registered Red Cross nurse on the staff of Mrs. Ruth Dodd, director of the Bureau of Child Welfare and Public Health Nursing. For the Bureau of Child Hygiene, Ellen Carter has given special attention to the supervision and instruction of colored midwives, for the major part of the childbearing population is served by midwives, many of whom are totally without training and without any understanding of the sanitary rules which childbearing should entail.

Ellen Carter was placed in Beaufort County, S. C., for the purpose of supervising the midwives there and of giving such instruction as was possible. The location of the county emphasizes the necessity for this work, as almost the entire territory is composed of a group of islands—the famous Sea Islands, where the long staple cotton is grown—and the population, because of this industry, is largely composed of negroes. The town of Beaufort is large and has a population of 5,000, of which number only 1,500 are white. Adjacent to Beaufort are the Islands of St. Helena, with a population of five thousand, only fifty being white; Lady's Island, with a five to six thousand population and but one white family; and Pinkney's Island, where unique conditions prevail.

The negroes living on these islands are peculiarly isolated, as there is no fixed method of communication between the islands and the mainland. The women depend entirely on midwives for obstetrical care, and these midwives were of a class whose ignorance was pitiable but whose willingness to learn was touchingly eager after they once understood the need for instruction. The first class which Ellen Carter organized was poorly attended. Only three appeared for instruction, but on this being reported to the local registrar, a police officer was sent out to "round up" the pupils. Soon the class outgrew the class room and the women were eager to receive the much needed instruction.

The homes of the negroes on these islands are clean; the people have good food, and the surroundings are fairly sanitary despite the fact that there are so very few white families. One island—Pinkney's Island—was owned by a Mr. Pinkney, who died some years ago, and his will forbade that a foot of the island ever be sold to a white man or to a negro; that no part of the land be rented to any white man and that the negroes only pay the most nominal rentals. Not a single child's birth has ever been registered from this island, although there is a state law requiring this. Here was a fine field for instruction work, and Ellen Carter made house to house visits, established a regular class of midwives and instituted many sanitary reforms which the people themselves were eager to accept.

To quote directly from a recent report made by this nurse, the following will be typical of her daily work:

Mondays I go twenty-five miles; Tuesdays, five and one-half; Wednesdays, nine; Thursdays, thirteen miles; and Fridays spend in Pinopolis, my home town. At each place I meet classes of midwives; on Mondays I have two midwives classes and two health club classes. Seventy-five women are enrolled in the health club class and each one has promised to go into a home, do a little health teaching, and bring another woman to the class next week. I make it part of my duty to visit schools give health talks, and on Friday and Saturday morning of each week I give bedside care.

To these children, more than 10 per cent under weight, the public health nurse carried the message of proper nutrition as a means of overcoming their handicap.

I find few tuberculosis cases—in eleven months have only discovered four—and these are usually persons who have been away and have come back with the disease. The people live in the open air and in a beautiful section of the state; the homes are clean and, while many have plain board window blinds, these are kept open all the time except when it storms; then it is inconvenient, for you have to sit in the dark until the storm passes.

I have six prenatal patients whom I see once a week, I have them meet in a body and I give a little talk to them and then encourage them to ask all the questions they want. In a single month I have supervised eight deliveries, all normal labor, with eight and one-half to ten pound babies.

Uses Group Plan of Instruction

My plan for getting the women to meet me in groups, either midwives or expectant mothers, is to send a notice to a church and ask the minister to read out that 'the Public Health Nurse' would like to meet all midwives and mothers at a given church at the day and hour announced. The women will come, but are suspicious at first, although I usually win their confidence after the first meeting. First I organize classes of midwives and then health clubs for the women. Our first meeting is closed always with one of what they call their 'spirituals,' which is a sort of song service. I always make it my business to call at the nearest house on my way home from a meeting, and usually I am approached by some member of the class, saying, 'Nurse, you went to Mrs. Blank's last time, can't you come to me this time?'

The best method I have found to approach families is through the children. I meet the children by going to Sunday School and giving them a talk. I then ask them to meet me at a certain place and hour on the following Tuesday, saying, "I have something to tell you," and they come; I never have less than twenty-five or thirty. I find it easy after this to visit the homes of the children.

No children are ever kept home from school for some diseases; whooping cough is one of them, and if you tell the mother that she should keep her children home when they have whooping cough she thinks you are crazy; she thinks you must have something against her or her children. The same is true of measles in the early stages, and it is safe to predict that once a contagious disease breaks out in a community, unless the doctor or the Public Health Nurse gets there first, everybody in the community will get it, because everybody visits the sick; and, if you do succeed in convincing one family that this is wrong, you have done a good day's work.

Transportation is hard for me in my work, and very uncertain. Some days the boats make the trips all right and some days they don't, but I manage to get over the ground some way, and I hope I am doing some good. Anyway, I've given silver nitrate to midwives and shown them how to use it, and have at least convinced them that they may dress the baby before the ninth day without doing any harm to it, and that they MUST take care of the mother, which is a distinct gain.

The children who are only 7 per cent under weight have a safer margin than those showing a higher degree of malnutrition. Once initiated into the proper health habits, they may usually be expected to cooperate fully.

It may be said that this is the report of but one community, but it is an excellent showing and is typical inasmuch as, from the very nature of things, it would seem impossible for the work done by this colored nurse to be undertaken by any white worker. The isolation of the negroes of Beaufort County, S. C., differs from that of other counties in rural districts only in that Beaufort County transportation must be had by water and the other places may be reached over roads the roughness of which can better be imagined than described.

The first stage in undertaking the care and development of the little patient.

Very little public health nursing, however, has yet been attempted for the colored race in the other isolated rural districts and what is being carried on most actively is that in cities where the negroes are herded together in groups. In the town of Durham, N. C., a colored Public Health Nurse is giving full time to the work and her success was so marked that the first nurse who undertook it, Julia Latta by name, was taken over by a famous tobacco company for exclusive work in their plant. Julia Latta seems to be doing industrial nursing along the most approved lines and is evidently demonstrating the need of this service to the satisfaction of the company employing her.

During the work of this nurse in Durham under the City Health Officer, she reports paying as many as four hundred house to house visits in a single month, visiting three graded schools each week, and, when the schools opened in the fall, she vaccinated as many as three hundred children and has given between eight hundred and nine hundred doses of typhoid vaccine in a single month, under the direction and instruction of the health officer.

Houses with typhoid and small-pox were placarded by the nurse, isolation of patients was directed, and special service was given to tuberculosis cases, with a view to placing the patients in suitable sanatoriums, while in many cases material aid was given through the local associated charities and the different church societies, of which there are many all over the South. The relief feature offered by illness and accident insurance companies is also used generally by the colored population of the South, and this is always an effective source of relief during illness of any long duration, which is a great help to the nurse.

In concluding a recent report regarding her past work, Julia Latta said, in reference to her service for the tobacco company, "My work seems to be giving perfect satisfaction. I feel that it is due in part to my previous work along this line and to the fact that I am pretty well known among all classes of people, having been city health nurse for four years and having also been in charge of Lincoln Hospital for eleven years."

From this it will be seen that the value of a colored public health nurse for employees is being recognized by some corporations in the South where colored labor is employed in large numbers.

A colored public health nurse employed by the Jackson, Tenn., Chapter reports that she finds the greatest bar to health work in her territory is insufficient housing for the colored population. She says they cannot be induced to make repairs on rented houses, but that these repairs are badly needed for sanitary reasons, and she urges community action in this particular.

This same need is strongly shown in all cities, and the work of city public health nurses among the colored always comment on this condition. In Atlanta, Ga., valuable work is being done for the colored through the school nursing and the Atlanta Anti-Tuberculosis Association. Charity Collins, the colored school nurse, reports a regular system of school visiting and examination of children by a doctor and a nurse. She describes the approved card given to each child noting its physical defects, and also describes the difficulties with which she meets in inducing parents to have the defects corrected; but she is not discouraged and is working persistently with the children's parents along this line. Charity Collins is a registered nurse. She did excellent work during the influenza epidemic among the white as well as colored nurses. She is a member of the Atlanta Association of Colored Graduate Nurses and is active in improving the standard of colored nurses.

The Atlanta Anti-Tuberculosis Association has put on two full-time colored nurses in the persons of Mary L. Irvin and Agnes Anderson. The city is divided into zones with committees appointed from the colored population, whose duty it is to make house to house canvasses from time to time. By this means it was possible for 143 visistors to be secured and 5,406 colored homes were reached, the number in these homes being estimated at 23,771. Regular educational work was undertaken, talks were given, posters prepared and circulated, letters written, notices sent to newspapers, and the interest of all the colored organizations in the city was enlisted.

During the past year eight clinics were held of four hours each week and seventy-five patients were turned over to the follow-up nurses. An active committee for colored patients has always been a part of the work of the Atlanta Anti-Tuberculosis Association, and through this Committee much effective public health nursing work is being done for this disease which has proven so fatal to the negro in the South.

The principle used by this Association is the only one that can hope to solve the problem—that of using the negro himself as a means of his personal improvement and of betterment for his race. The educated negro is eager to join any association which points to community betterment; the "Public Welfare League" of Nashville, Tenn., which is affiliated with the National League on Urban Conditions among the Negroes, was organized during the war and continues during peace times to give attention to improving the living conditions of the negro and thus to ultimately result in better health conditions.

The Infant Welfare Clinic is the health guardian of the families which come to it.

Health campaigns were conducted at stated times by this League and one of the results directly traceable to this work was the reduction in the city of Nashville of the infant mortality from 202 per one thousand births in one year to 173 per one thousand in the following year.

All of these facts, taken as they are from scattered localities, are mere indications of the beginnings of health work for the negro along the lines of public health nursing. But, meager as the details are, they yet indicate that a beginning has been made and that work in the future will, from all indications, have a normal growth and will eventually result in the permanent improvement of the health and of the commercial usefulness of the colored population of the South.

INFANT WELFARE CENTERS

The widespread interest in the establishment of some form of child health supervision in widely separated communities maintained at local expense creates the need for standards to be maintained in maternity and infant welfare centers. There is published in *Public Health Reports* for July 16, 1920, an abstract from a memorandum in regard to maternity and infant welfare centers issued by the British Ministry of Health, in which modifications have been made by additions and omissions to adapt the organization to American conditions. This publication will be useful as a guide to other communities who are contemplating this type of child health supervision.

INSTITUTE FOR INDUSTRIAL NURSES

The New Haven, Conn., School for Public Health Nursing recently offered a program lasting ten days, including lectures and round tables on public health nursing, industrial nursing, industrial hygiene, industrial diseases, records, ethics of industrial nursing, industrial relations, industrial psychology, nutrition, and health education was offered, supplemented by trips to manufacturing plants and practical demonstrations both in work and play activities.

The institute was attended by fifty-four registered public health nurses, representing eight states. Various industries were represented and the fact was very clearly brought out that, while no fixed rules can be made to fit all places and conditions, certain fundamental rules of industrial nurses can be formulated.

INTRODUCING PUBLIC HEALTH TRAINING IN TRAINING SCHOOLS*

By STELLA FULLER, Extension Secretary, Central Branch Office, National Organization for Public Health Nursing, Chicago, Ill.

LOOKING back over the past fifteen years, several developments which have materially affected our national rural life are outstanding. The rural free delivery of mail has done much for the isolated farm and, incidentally, for the mail order houses; the rural telephone lines have been a wonderful help to the farmers everywhere, making it possible for them to keep in touch with the market reports, with medical help in times of illness, and generally have promoted social life and recreation. Mr. Ford in his manufacture of a cheap automobile has made it possible for parents and children to enjoy many happy times together, and because of it the public highways in this and many other states have been much improved; the moving picture shows, which have such possibilities educationally, are now enjoyed by rural populations.

Along with these helps to happiness and efficiency has come the public health nurse, who until recently confined her work for the most part to cities, towns, and villages. Unfortunately, a public health nurse cannot be secured by a mere expenditure of money. It takes a long time to prepare a public health nurse for the highly specialized work which she is called upon to do. We must face the fact that for a long time to come we cannot expect to have enough public health nurses to do the city work, to say nothing of the rural districts, where it is so badly needed.

Need Cooperation of Training Schools

One of the most effective ways of combating the shortage of nurses is the opportunity this shortage affords to encourage the interest and cooperation of superintendents of training schools, whose function it is to make the public health field attractive to their students.

Here it should be stated that all nurses should be public health nurses. I once made the statement at a nurses' meeting in Washington, that all superintendents of tuberculosis sanatoriums are or should be public health nurses, and a very able nurse questioned the statement, though it should be plain enough that no sanatorium executive can deal humanely, intelligently, or well with poor, discouraged tuberculosis patients unless she knows the principles of public health nursing and sees their great opportunities.

There are about three thousand schools of nursing in the United States. The hospital is the laboratory of each school. The extent of the task of educating the students is appreciated when we remember that their preparation should include a study of all the phases of health and sickness. Someone may say: "It is not necessary, or advisable to provide public health training for a nurse who intends to specialize in surgery or possibly laboratory work." Why not? The surgical nurse should know that the operative case might never have needed to enter an operating room if the forces of public health working together had reached him. She should know the kind of home to which the patient returns, the food provided for him, the care he is to receive, the kind of job he gets, as all these factors influence his future physical and mental welfare.

All are familiar with the term "complete maternity protection," which means "careful guidance and education of the mother before the child is born, good obstetrical care during the lying-in period, constant follow-up work until, and *after*, the child has reached adult life, in order that posterity may be benefited." The obstetrical nurse who simply takes a case for ten days or two weeks has an experience similar to that of a theater-goer who sees only the second act but knows nothing of the first and third.

It must be conceded that student nurses should have some instruction and experience in social service, in school, child welfare, industrial, tuberculosis, mental hygiene, and visiting nursing.

Wisconsin Problem Stated

The problem for Wisconsin is: How is this extra training to be provided? Who is going to pay for it? Should it be included in the present three year course, or should the time be made longer? Is four months time sufficient for a public health course? Where, in Wisconsin, can the necessary field work and supervision be provided? Should there be a special instructor or director? Should this extra work be attempted by supervisors who perhaps already have all they can do? Is it expected that the students after graduation will be on a par educationally with nurses graduating from recognized courses in public health nursing? Would it be best done through the close cooperation of nursing schools, visiting nurses, or public health associations and a college or university? Should it or could it be done in a uniform manner throughout the state? Is the new hospital at Wisconsin University planning to include such a course? Is it not possible to send such pupils to Milwaukee to take a course given by the Wisconsin Anti-Tuberculosis Association? If public health nursing is included, will anything now included in the training school curriculum be shortened or omitted?

Situation Demands Added Facilities

It is certain that public health nursing should not be introduced in a training school that is already poor. No public health nurse can do efficient work if her training lacks the necessary experience in children's diseases, obstetrics, and related fields. Some schools have thought that they could secure probationers more easily if public health nursing was offered. Nothing in a training school course should be omitted to make public health nursing possible. The public health nurse needs a careful, well rounded course.

What Any Superintendent Can Do

Every training school can do some things, however, to interest and educate pupils in public health nursing. The superintendent of nurses can see that current numbers of the *Public Health Nurse*, a magazine devoted to public health nursing, is always on the nurses' library table; she can see that the National Organization for Public Health Nursing poster is somewhere in sight. She

* Read before the annual meeting of the Wisconsin State Nurses' Association, Wausau, Wis., October 3, 1920.

can arrange to have the pupils see moving pictures showing the work of public health nurses. The National Organization for Public Health Nursing has a film that can be rented for five dollars per day, plus transportation charges. Bibliographies, reading lists, and pamphlets on public health nursing can be secured for the hospital library. The Joint National Committee of the American Nurses' Association, National League for Nursing Education, National Organization for Public Health Nursing, and the American Red Cross, also offers a series of prepared lectures on public health nursing to be read to student nurses by an authorized public health nurse.

The prepared lectures cover achievements and opportunities in the field of public health nursing; visiting bedside nursing; industrial nursing; prenatal, maternity, infant and child welfare nursing; tuberculosis nursing; nursing in the venereal clinic; medical social service; mental hygiene and the public health nurse in relation to community development. The lectures have been written by nurses who have had many years of experience in the public health field and it is hoped that every superintendent of nurses will arrange with a local public health nurse to give these lectures, supplemented by her own experience, to the entire school. The little booklet in which the talks are printed will be sent gratis from the Central Branch Office, N.O.P.H.N., 116 S. Michigan Avenue, Chicago. Each booklet is numbered and is to be returned after the lectures have been given, in order that they will not be used after the material is out of date.

These lectures have been read by the Educational Committee of the National Organization for Public Health Nursing, Miss Anne Strong, director of the school of public health nursing conducted by Simmons College and the Boston District Nurses Association; Mrs. Bessie Haasis, who until recently was the Educational Secretary of the National Organization; Miss Katherine Tucker, superintendent of the Philadelphia Visiting Nurse Association and ex-president of our Organiztaion; and Miss Hudson of Teachers College, New York City. Miss Elizabeth Fox, Director of Public Health Nursing under the American Red Cross and Miss Mary Marshall, Supervising Nurse for the National Tuberculosis Association, are members ex-officio of the Educational Committee by virtue of the fact that they are "consumers" of public health nursing.

In several large cities—Chicago, Boston, Philadelphia, and Los Angeles—the superintendents of training schools have arranged to have the senior students of several schools meet at a central place for a series of ten lectures on public health nursing given by different nurses who had studied and worked along special lines.

For the past three years Mrs. Theodore B. Sachs of the Chicago Tuberculosis Institute, 8 South Dearborn Street, has arranged a series of lectures for senior students of accredited schools. The course for this season consists of twenty-five lectures to be given by social workers, physicians, and nurses of Chicago. The students are brought together in three groups, because of the number of pupils and distances in the city, making it necessary for each instructor to give the same lecture three times. Outlines of the talks are given to the schools in advance, and at the end of the course each student prepares a thesis on one of the subjects. The papers are marked by a committee and prizes awarded. The distribution of literature might very well be added as it would assist the students to get a better idea of each subject and it would, of course, be valuable for reference.

Miss Jane Hitchcock and Miss Suzanne Haliburton in New York City, have visited many training schools to speak on public health nursing.

In April, 1920, the Henry Street Settlement, New York City, made an interesting report of an experiment in preparing under-graduate nurses for public health nursing. Thirty-six hospital training school pupils were sent to the settlement for a period of four months, from the Newton Hospital, Massachusetts, the Presbyterian, the Post Graduate, St. Vincents, and Bellevue, New York, and from the Army School of Nursing. They took three courses at Teacher's College on the principles of public health nursing, home-making, adjustments in social work, and the principles of modern social work, the class work being supplemented by actual field work.

The expense of maintaining the students was met, for the most part, by the hospitals from which the students came. The total expense of students from the Army School of Nursing was paid by the Red Cross. This was because the army regulations would not permit the Medical Department of the army to meet the expense. According to Miss Goodrich, on present schedules, the complete expense of the students so admitted is about four hundred dollars for the student for the four months, not including the overhead expense of supervision, etc.

In one month, 6,490 visits were made by these students. Of course, much time was necessarily spent in group and individual conferences. It was first thought that each student should have her own district as is arranged for the regular members of the staff, but it was finally arranged that a student should be under a regular member of the staff who would give her such cases as would afford the most complete and valuable experience.

These student nurses wrote their impressions of the course afterward. They were all impressed with the gratitude, trust and appreciation of the people whom they served,—and it is to be remembered that many of these New York district patients are immigrants who do not speak the English language. The student nurses said they had heard that such living conditions existed, but they did not believe it until they went into the field and saw the background of patients who, in the hospital, were only cases.

Student Impressions Significant

A student nurse who was very enthusiastic concerning the public health work she had in Cleveland, said she enjoyed every minute of it. She liked the home visits, the lectures, and the demonstrations given in the class room. She had chosen the public health experience because she wanted a broader outlook on the nursing profession. Her final decision was: "Knowing some of the problems the public health nurse has to meet, I am convinced she should have the wisdom of Solomon!"

This young woman would have little patience with the nurses who *want* to do public health nursing, but refuse to spend time and money to prepare themselves for it, many such applicants claiming that they *know* they can do it because they get along well with people, or that they served overseas.

Adds Interest to Training

One who knows has said: "The pupil nurses who take this work not only acquire some knowledge of public health work before graduation, they also carry back to the remainder of their hospital course a knowledge of the environment of their patients which shows them their work in a greatly broadened aspect. Moreover, many of them become so interested through this brief glimpse of the public health field that after graduation they wish to specialize in it."

Our Educational Committee has made the following sug-

gestions for the guidance of superintendents who contemplate including public health nursing in the training of nurses:

(1) Not less than two full months, including theory and practice, should be considered—four months time is preferable. At least eight months are now considered necessary for a complete course in public health nursing.

(2) At least six hours of theoretical instruction should be given weekly.

(3) The instructor in theory and practice should be a public health nurse of considerable experience who can *teach*, not simply take the nurse with her.

(4) Not every pupil in the training school can be given this experience. The superintendent should decide which pupils should have it.

(5) The students should work with an experienced nurse for a considerable time, at least two weeks, before being permitted to make visits alone.

(6) The Association responsible for this training of the pupils should not give it with the idea of *getting work done*.

(7) Definite arrangements should be made to finance the pupils during the time they are away from the hospitals. (The Red Cross has paid Visiting Nurse Associations sums of money in this good cause, now the hospitals are doing more of it.)

(8) It is better in making plans of this sort to have the pupils spend the whole time getting experience in one phase of work, such as tuberculosis nursing, or bedside nursing, rather than have them get a smattering of all, with no clear idea of any.

(9) Such experience is not to be considered a course. It simply gives the nurse a broader, more intelligent idea of health and disease, and prepares her for work on a staff where she can have careful supervision.

There are about 150 hospital training schools in the United States giving this training to their pupils now.

The Philadelphia General Hospital and the Jewish Hospital of Philadelphia are sending their pupils to the Philadelphia Visiting Nurse Association. An outline used by Miss Frost in this work, can be secured through the New York Office of our National Organization for Public Health Nursing, 156 Fifth Avenue. In Boston the Massachusetts General Hospital, the Peter Bent Brigham, and the Quincy Hospitals are cooperating with Simmons College and the Boston Instructive District Nurse Association. In New York the Post Graduate, the Presbyterian, and the Newton, Massachusetts, Hospital, and others have been giving their pupils the benefits of Teachers College and Henry Street Settlement. In Cleveland the Lakeside Hospital, the City Hospital and Mount Sinai Hospital are sending students to the Cleveland Visiting Nurse Association. The Chicago School of Civics also took student nurses up to the time the school was discontinued a few months ago. More complete lists and further information can be secured by writing Miss Anne H. Strong, 561 Massachusetts Avenue, Boston, Mass.

Finally, to quote Miss Nutting, who said in a paper read at the Atlanta meeting: "A serious weakness with which we have to contend lies in the character and amount of teaching provided for student nurses. There is urgent need of better work in this direction, of a wider range of subjects more *thoroughly handled*, better equipment in the way of classrooms, laboratories, and libraries; just such provisions, in fact, for teaching as are commonly found in all other professional schools."

If there be almost no constitutional disease in wild nature, why should it persist in mankind? Why should man and his stock have a monopoly of senility? If certain microbic diseases can be got rid of, why do we allow them to linger in our midst? . . . If we cannot alter the span of human life, we can at any rate make sure what we shall *not* die of.—Thomson.

HOME HYGIENE CLASSES POPULAR

By Miss Mary D. Collins, Chicago Chapter, American Red Cross

THE Chicago Chapter of the American Red Cross, through their Juniors, have in the last year given in the public schools a practical course in Home Hygiene and Care of the Sick. This course has been given during school hours and credits have been allowed the children for the work. The course was first started in seventeen elementary schools with the approval of the Board of Education in the seventh and eighth grades. It met with such universal success that it was put into eighteen more schools, one of these a high school, and at the same time a trial course was started in one of the parochial schools of the city. This course was taught by a registered Red Cross nurse, carefully selected with attention given to her ability to teach children. An ideal equipment was shown but the lessons were given with substitutes such as would be found in any home. From an entirely different angle the children were taught how to take care of themselves, how to prevent disease from spreading, how to care for the sick; how to keep a chart, to take temperature, to make a bed; and how to wash, bathe, and feed a baby. The success of this course has been remarkable. Teachers told of whole families whose personal appearance in cleanliness had been changed after the child had a few lessons. During the recent epidemic doctors and visiting nurses remarked upon the efficiency of the children in the homes where this course had been given. Many a mattress that had never been turned has now been shaken vigorously and a properly made bed is the pride of many of the children. Between four and five thousand children have had this course, with the result that the parents of these children and the teachers in the schools have asked for a course for themselves. It is impossible to estimate the value of this course or its wide-spreading influence. Universal interest was aroused in these very essential matters that have to do with every day home life and by this means whole families were made alive to their health needs.

In addition, the same work has been given to several thousand adults throughout the city, the classes being carried on in community centers, schools, and churches. Many of the classes have been among the foreign born and it is felt that the work takes an important part in the plan for the Americanization of these people.

Plans are being laid for more extensive work in this field next year and many thousand women and children will thereby be made better mothers and home-makers.

USE CARE IN WORKING CERTIFICATES

A warning to parents was issued recently by the State Department of Labor and Industry, New York, calling attention to the provisions of the School Attendance Law, which requires that before obtaining a working certificate, the child must be certified by a physician as sufficiently sound in health and physically able to perform the work the child intends to do. The order states that the purpose of the requirements for health certificates for children is to safeguard the child entering industry, to shut out from industry children with such serious defects as to make their employment dangerous, and to protect children from entering occupations or processes for which they are physically unsuited. The object of the law is defeated unless the examination is distinctly related to the work the child desires to enter. Examining physicians are enjoined to acquaint themselves with the general nature of the occupations which the children in their districts desire to enter.

PROBLEMS IN SOCIAL MEDICINE

Medical and Health Education, Child Welfare, Social Insurance, Rehabilitation, Medical Law and Allied Subjects

JOHN A. LAPP, LL.D., *Editor*

THE CHURCH AND SOCIAL HYGIENE

AMONG the resolutions passed at the recent Lambeth Conference of Bishops of the Anglican communion, according to the *Survey*, was a plea for cooperation in the suppression of venereal diseases, a definite stand against the use of venereal prophylactics, opposition to birth control by use of contraceptives, and a statement of the necessity of furnishing proper sex instruction to children.

The Conference, moved by responsible statements from many nations as to the prevalence of venereal diseases—bringing suffering, paralysis, insanity, or death to many thousands of innocent as well as guilty—supports all efforts which are consistent with high moral standards to check the causes of disease and to treat and, if possible, cure the victims.

We impress upon the clergy and members of the Church the duty of joining with physicians and public authorities in meeting this scourge, and urge the clergy to guide those who turn to them for advice with knowledge, sympathy, and directness.

The Conference must condemn the distribution or use, before exposure to infection, of so-called prophylactics, since these cannot but be regarded as an invitation to vice.

JULES SCHEVITZ.

FEEBLEMINDEDNESS AND TUBERCULOSIS

THAT physical diseases have psychic effects and mental diseases have physical effects are generally conceded. An interesting attempt by Menninger[1] to assign a definite and clear cut relationship between tuberculosis as an example of a physical disease, and feeblemindedness as a representative of mental unhealthiness, serves to illustrate the necessity for a broad attack on tuberculosis as a public health problem.

With a steady development in the tendency for modern medical specialization, Menninger rightly reminds the specialized health worker what the latter has consistently urged on school administrators in discussing child health, namely—a consideration of the physical as well as mental aspects of child life. The body as well as the mind goes to school, and neglect of the body will be reflected in the child's mental progress. So in the case of physical disease in which psychic effects are manifested, and in mental diseases in the presence of physical derangements, it becomes necessary to study the problem with both the mental and physical ailments in view.

Tuberculosis as an effect of feeblemindedness is by no means infrequent, and the same applies to venereal diseases. It is obvious that in such cases that the treatment of either the physical or the mental condition demands a careful consideration of the other. The fact that these ailments—physical and mental—are often associated and arise out of similar social situations makes the interrelationship even more striking.

A recent study by Brown[2] of the social and medical aspects of childhood delinquency indicates a definite relationship between the child's physical deficiency, such as improper nourishment, and the mental condition. With improvement of nutrition, hyperactivity and irritability have been noted to disappear. Special examination in mental health as well as physical is essential for prevention. Social attitudes toward conduct disorders have served to prevent rational treatment.

"Look at the whole patient," is Menninger's plea. "Ill fares that man, or his patients, who conceives them as carrying their lungs in one basket and their brains in another." If feeblemindedness is at the root of many social ills, including tuberculosis and syphilis, the mental hygiene worker is performing a definite contribution to the anti-tuberculosis and social hygiene programs. The health worker on his part can render a material service in the mental hygiene movement by referring mental deficiencies to the proper agencies for expert attention.

JULES SCHEVITZ.

BIRTHS SHOW INCREASE

In the birth registration area of the United States exclusive of Rhode Island, which failed to send in transcripts of birth certificates, 1,365,585 infants were born alive in 1919. The total number of deaths in the same area was 791,732, the births exceeding the deaths by 573,853, or 72.5 per cent, these figures affecting about 58 per cent of the total estimated population.

The number of births for the year 1919, compared with 1918, shows a decrease of 7 per cent in the registration area. Each state shows a decrease, the percentage ranging from less than one in Maryland to ten in Utah and Wisconsin. This is in marked contrast to previous years, as the number of births had increased from year to year.

The infant mortality rate is 87 in 1919 and is the lowest infant mortality rate on record in the birth registration area. Among the states these rates range from 63 in Oregon and Washington to 113 in South Carolina.

1. The Survey, October 23, 1920, pp. 117.

1. Menninger: The Relation of Feeblemindedness and Tuberculosis, Jour. Outdoor Life, 1920, September, xvii, No. 9.
2. Brown, Sanger, H; Social and Medical Aspects of Childhood Delinquancy, Jour. Am. Med. Assn., October 9, 1920, No. 15.

COORDINATION FOR CHILD HEALTH

By RICHARD A. BOLT, M.D., Gr.P.H., General Director, American Child Hygiene Association, New York City

THE National Child Health Council, a council of national organizations for coordinating child health activities, has opened headquarters in Washington and begun its work as a first active step toward that coordination in the health field which has been desired for a number of years by nearly everyone engaged in health work. The Council has secured as its Executive Secretary, Mr. Courtenay Dinwiddie, who brings to this important position exceptional qualifications and a wide and varied experience.

The earlier stages of the wider application of biology, medicine, hygiene, and philanthropy to the amelioration of disease were marked by isolated efforts in special fields by the proponents of one measure or another.

It was natural that the borders of what one considered his special province would overlap that claimed by another. Life does not recognize our nicely drawn classifications, but ever requires to be met by properly adapted, correlated efforts.

The interdependence of the innumerable factors of disease has developed the interdependence of organizations for relief. Learning, research, and administration are all served by a program which brings individual effort into essential harmony with cooperative planning, which brings each individual observation to bear collectively upon the intelligent handling of the entire problem.

It is significant that this advance in practical health coordination was stressed at the Eleventh Annual Meeting of the American Child Hygiene Association recently held in St. Louis. Dr. Philip Van Ingen, the retiring president of the Association, in speaking of the need for cooperation, said: "We should be willing and anxious to accept good methods proposed and tried out by other organizations and preach them as part of the general program. It is only by a knowledge of the work of other organizations on our part, and their knowledge of our work, that we can pull together and conserve our energy. We are an army—an army of construction; it is only by unity of action and complete cooperation, which must be based upon complete knowledge of one another's plans, that our constructive warfare will end in success."

All Problems Are Interwoven

At the same meeting Mr. Herbert Hoover, in laying out a national program for child health said in part:

All the problems of birth, health, food supply, education, labor, and housing are so interwoven that they must march step by step. . . . We need more widely extended teaching of the fundamentals of nutrition in the public schools, not only as a part of the advance in public health but also in household economics. Some may object that this extension of medical supervision by community nurses, clinical inspection of children in schools, a supplemental meal in schools of certain sections, all tend to an extension of too intimate government. In the very creation of free schools and compulsory education itself, we have accepted the fact that we cannot as a Nation rely for the upbuilding of the race upon the initiative of the parents alone. No one can deny that the physical development of child life is of equal importance with education. We, every one of us, pay the price in our jails, in our poorhouses, in our hospitals, in the loss of our economic efficiency, the fertile ground that we furnish for all the social patent medicines, for our failure to have grasped the entire problem of child development, not only intellectual but physical as well. . . . Every child delinquent in body, education or character, is a charge upon the community itself. The children of strong physique, of sound education and character, are the army with which we must march to progress.

Our conception of social problems and social needs has developed in such a piecemeal fashion as greatly to increase the tendency toward a high degree of specialization in health work for children, as in other social fields. As soon as anyone conceives a new idea to meet some problem which he believes has received inadequate attention, his inclination immediately is to develop a special program for that particular problem without attempting to relate it to the programs of others. The obvious result of these tangential efforts has been a very serious lack of correlation, both in local and national efforts, and in many cases overlapping and duplication.

It is scarcely an occasion for surprise to find three or more organizations preparing and issuing literature on the same subject, such as, "How to Organize a Baby Clinic," "Child Health Centers," etc. The several statements are often based on wholly different standards. Such a diversity of views, particularly among those who are looked upon as authorities, causes great confusion in the minds of field workers, to say nothing of the ordinary citizen. It was with this in view that the American Child Hygiene Association made a careful study of the programs of all national organizations purporting to carry on any phase of child welfare. This was followed by the preparation of digests of the programs of sixty-four national organizations which were compiled and distributed to the various organizations. Is it any wonder that the business men, when appealed to for funds, have said, "there is no end to these organizations"?

The officials of a city, because of a contact established at a conference, or in some other way, may issue a written request for the services of a representative of a national organization. That organization may be unable to meet this request and yet it may be entirely possible for a representative of another organization to meet the demands at just that time and place.

There is no more well known result of lack of coordination in the health field than the fact that nearly every organization has members of its staff, as individuals or as expert librarians, going over a mass of periodicals, books, and literature generally, digging out information of one sort or another of special interest to that organization. There is certainly a great opportunity for common helpfulness through a pooling of efforts in this field alone.

A Clearing House of Common Helpfulness

It is only recently that we have begun to find that these more or less obvious defects through lack of coordination are far less important than the very serious gaps in our health program, which exist because of lack of common planning. There is a general and increasing demand all over the country for a really well rounded program for child health.

The representative of that national organization who is called in to advise in the establishment of one or another of these activities can no longer escape the respon-

sibility for presenting not only his own particular problem and its solution as he sees it but for telling the whole story of a generous and vigorous program for the positive health of a community. A specialist, whose expert opinion on infant feeding as a community problem may be sought, should not even tacitly leave the impression that the feeding problem is the whole problem and is settled for life in early infancy.

After a number of years of preaching community coordination, some few communities are actually beginning to practise a genuine subordination of individual interests and correlation of effort for the common welfare.

How can national organizations sincerely and effectively act as advisers to local communities if they do not begin to set their own house in order and practise the same spirit of genuine correlation of effort that is being demonstrated in some of the more progressive communities?

With these things in mind, five of the national organizations with well defined programs, devoting their efforts wholly or partially to child health, have decided that it is time for action to try out some of the possibilities for common planning and coordinated effort. The five organizations that have thus joined hands in forming the National Child Health Council are the American Red Cross, Child Health Organization of America, National Child Labor Committee, National Organization for Public Health Nursing, and the American Child Hygiene Association. It is expected that before long the National Tuberculosis Association will join the Council.

The main objects of the Council, briefly stated, are:

1. To define and develop so clearly their own work that each organization will be working in harmony and cooperation with all the others.
2. To develop new methods which will lead to meeting more effectively some of the special problems still unsolved.
3. To afford an opportunity for any organization dealing with the health of children to submit its plan and program for suggestions.

Acts as an Advisory and Coordinating Agency

The Council has decided that there are two main lines along which its program of coordination may best proceed. The first move will be toward securing a consensus of authoritative opinion on some of the general problems of policy and also on special medical, nursing and other questions relating to child health. This will be the first step toward agreeing upon common objectives.

As a means to this end, it is proposed to create national advisory committees on special subjects. The membership of these committees is not to be limited in any way to membership in the Council, or in the organizations which so far make it up. It is planned to have these committees as broadly representative of authoritative opinion and experience as possible, so that they may serve all who wish their advice and help.

One of the next steps the Council will have to take is to see that these committees have sufficient help in order that they may really be active and useful. For the present, the burden of this will probably fall most heavily upon the five organizations which have joined in forming the Council.

Another definite line which the Council proposes to follow is that of actually trying out coordination in field work. Many possibilities suggest themselves and it will be the duty of a sub-committee to determine which are the most practicable and to see that genuine effort is made to try each out thoroughly under the best possible conditions of cooperation.

It is natural that a movement of this kind should center around the health activities of the child. That is a field in which people surely can be drawn together. It also happens to be a field in which five of the organizations with fairly well defined health programs for children are keenly interested in seeing such coordination brought about.

The most interesting thing about this endeavor is that it has been entirely spontaneous within the organizations themselves and not due to any outside pressure. Other organizations will undoubtedly wish to come into the Council as it demonstrates its usefulness.

A NEW "AUTOMAT" IN LONDON

Keystone View Company.

The new automat installed in London makes it possible for late customers to help themselves. The contrivance for dispensing the milk is fitted low into the door of the dairy, well within the reach of the smallest messenger. The presence of a "grown-up" is unnecessary.

LESSONS IN MOTHER-CRAFT

More attention should be paid in schools to instruction in the elements of hygiene, and all senior girls should receive lessons in mother-craft. No scientist would hand over to an uninstructed girl a delicate piece of scientific apparatus, and expect her by some natural gift of intuition to know how to handle it, control it, and use it. But, by habit, that is what we are daily allowing to occur. Girls of all classes marry without the haziest ideas as to child-nature and child-welfare. It is therefore little to be wondered at that the proportion of babies which die in the first year of life is enormously high, especially in our great cities. Many of these unfortunate infants are first babies. They die that through their unavailing tears their inexperienced mothers may acquire some slight knowledge of how to rear children.—*Mackenna.*

PRESENT TRENDS IN MEDICAL PRACTICE*

By FRANK B. WYNN, M.D., Indianapolis, Ind.

The strength and weakness of medical practice, whether general or special, are mere matters of attitudes, of personality applied to the problems involved in the new adaptations now demanded.

If the general practitioner lose faith in his method, his work slumps, and he is in a fair way to become a part of the present disorganization.

If the specialist unduly narrow his range of vision, if he corner the special methods of technic and daring modes of treatment, his spectacular course will too often be marked by noisy plaudits.

When schools turn out, first, men; then thoroughly prepared general practitioners; later on, specialists; and, last of all, a fully coordinated service which handles the patient as a reacting mechanism instead of a bundle of unrelated disorders—the new ideal will have been evolved.

SPECIALIZATION is the key which unlocks the door to modern progress. The world acclaims its virtues and extols its achievements. In every avenue of human activity specialism prevails, no less in commerce and manufacture than in science and art. Thankful for its rich fruits of benefit, it should also be our duty more often to inquire if there are not perhaps at the heart of the system, subtle and undermining influences which may threaten the foundations of civic life.

By intensive effort in a limited field and the economic advantages of labor division, specialization may reveal wireless telegraphy, produce a marvelous machine, and bring luxuries within the reach of all; but do we stop to think of the multitude who become mere unthinking cogs in the wheel of industry; who grind their lives away without initiative; whose hearts do not pulsate with the joy of their work; whose single thought is to produce quantity and receive the wage? On the one hand, division of labor, cheaper production, and larger dividends for the corporation; on the other hand, organization, unionization, and larger wage for labor. The goal held up is not contentment in life, joy of labor, perfection in workmanship—but how well will it pay? It is pertinent to ask if medicine has shared this world wide trend toward materialism. If so, let us beware lest our profession degenerate to the level of a trade.

The Propaganda of Special Medicine

Medical specialism has grown with phenomenal rapidity. Beginning a few decades ago as a mere tributary of the main stream of medical practice, it has swollen to a flood and the question is where will it end? In its earlier history the so-called proprietary medical colleges were the most potent influence in spreading the propaganda of special medicine. Under the newer régime in medical teaching conditions are improved, but the curricula and clinics still give special branches a dominant influence. The truth of this statement is evinced by the fact that rarely does a medical student graduate without resolving upon a specialty, at once or in the near future. By him specialists are grouped as a class of the elect in medicine; general practice he looks upon as the recourse of the mediocre and unambitious. He views general practice as a sort of purgatory for the abandoned in medicine, from which sphere now and then one may be translated to the realm of the blessed in specialism! And now has come the World War, inundating the country with specialists of high and low degree! Lastly, the State has gone into the specialty business; but it opens up a new problem it is not our province at this time to discuss.

The triumphs of specialism have been the chief glory of the profession. It is a record dazzling the eyes of the world with its brilliancy and swelling the heart of mankind with thankfulness. In the realm of pathology alone, it has yielded knowledge of the causes of disease and laid firm the foundations for modern triumphs in medical and surgical practice. It has made plain the field and revealed the methods for tilling the soil in preventive medicine. No less amazing have been its achievements in the practical branches of the profession; but let not this brilliancy blind us to the existence of corroding agencies which may eat at the vitals of our profession.

From the very outstart medical specialism has exhibited a virile aggressiveness somewhat at variance with traditional medical modesty. The specialist feels impelled to write or talk about his subject upon every hand. The profession in general has condoned the practice, although with occasional mutterings. In medical society the votaries of specialism are quick to proclaim its virtues. Medical journals unstintingly spread its propaganda. Almost every mail brings the reprint, which we are sometimes disposed to consider obtrusive. So long as this aggressiveness is scientific and not commercial in bent, we should welcome it with open arms. Such, in the main, are the contributions of specialism. Along with these virtuous efforts there creeps in all too often the spirit of arrant boastfulness, constituting the bad manners of specialism. Who is not familiar with titles like the following: "My First Hundred Operations for Ectopic Pregnancy," or "Analytical Study of Three Hundred Successful Appendectomies"! The observant practitioner listens with rapt attention, but subtracts liberally. The latter may be courted by good manners; he is more likely to be won by straightforward, scientific presentation; only seldom is he duped by arrant boastfulness.

Sharp Contrasts Are Made

During this period of growth in specialism, the general practitioner has gradually sunk into the slough of despondency. He comes to look upon his specialist colleague as one always dwelling in Elysian fields and reaping rich fruit with a minimum of effort. Sharp contrast is drawn between the labor and rewards of the specialist and himself. Avarice eats at his heart. Envy comes to sit with him, where formerly abode faith, hope, and courage. Viewing from afar, he gets a distorted impression of the specialist's life, which he pictures as always in the midst of flowery beds of ease. He weighs his own sacrifices—his sleepless nights, his hastily swallowed meals, his meager fees, and belated vacation against the imaginary ease, the smug and thrifty appearance of the specialist whom he meets. He coddles his conscience into the conviction that something is fundamentally wrong. Dangerous ground this upon which he is treading. He is in imminent peril of sinking into the mire of materialism.

*Presidential address before the Forty-Fifth Annual Meeting of the Mississippi Valley Medical Association, Chicago, October 26-28, 1920.

Here arises the degrading impulse to enter into partnership with equally sinful specialists in the secret division of fees—a practice wholly at variance with the idealism of the profession. Thus has grown out of specialism the nefarious and unprofessional practice of rebating and fee-splitting,—a thing which is material, mercenary, dishonest, and shocking to the medical conscience.

The disparity alleged between the net income of specialists and general practitioners is more apparent than real. Rather a wide acquaintance with both groups warrants the author in the deduction that more general practitioners than specialists amass comfortable fortunes. It is curiously true that specialists seldom finish their careers full handed. This is explained in part by the relatively shorter fastigium of the specialist's active career. He is always obliged to spend liberally in keeping up appearances. He belongs to expensive clubs; maintains offices of considerable pretention; employs expensive assistants; drives a fashionable automobile; and lives in dignity comporting with one of rank in the profession. Much time is devoted to preparing medical papers and attending medical meetings. His professional prestige makes him a favorite target for subscriptions to charitable undertakings with a medical bearing. He gives largely of his time to medical teachings and attendance upon dispensary and hospital clinics. Thus is he, no less than the general practitioner—although in a different way—kept in constant turmoil and anxiety and his career has more of the gamble in it than the steady gait of general practice. True the general practitioner receives smaller fees, often outrageously small, but his earning career extends over a longer period; the source of his income is more stable; the customs of his practice beget the habit of frugality; he saves and invests wisely.

Instead of condemning specialism for elevating the level of fees, the profession in reality owes it a lasting debt. A deservedly higher standard has been set toward which we should all strive. Competition in all special lines has become so acute that no longer does the charge of a money-making class hold as in the halcyon days of a few decades ago.

In this connection it is but fair to say that the surgical specialist enjoys a monetary advantage over his less spectacular colleagues, the internist, the laboratory man, or the general practitioner. To the average layman, an amputation, a herniotomy, or the removal of an ovarian cyst possesses heroic appeal, however simple the mechanics of the procedure. He pays a liberal fee for the operation without quibble. On the other hand, the quieter methods of diagnostic or therapeutic procedure seem to him commonplace, though they may require the most skillful technic and in their interpretation call for the exercise of the finest judgement—decisions, in fact, upon which hang life and death or the determination surgical action. Yet at the exaction of any considerable fee for such service the layman expresses astonishment. In cases where courts determine what constitutes reasonable remuneration, judges and juries are likely to award liberal allowances for surgical operations, but reduce other fees to the dead level of a unionized scale.

The public is greatly in need of enlightenment upon what constitutes proper valuation of professional services —whether laboratory, medical or surgical. The layman needs to be taught that the practitioner who carries him safely through a siege of typhoid fever or pneumonia, with their perilous risks, has performed a service as large as a surgeon who removes a cyst from the abdomen or drains the gall bladder. Systematic cooperative attempt is needed to bring about the proper readjustment of fees.

Turning from this critique of the economic phases of specialism, I wish to consider a trend toward materialism, which is of a wholly different nature. In its very essence medical specialism means restriction of effort to a limited field which is intensively cultivated. The specialist becomes a piece-worker, prone to forget the body as a whole, just as the piece-worker in the factory becomes an automaton, uninterested in the machine of which his part is a unit. The deadening effect of piece-work upon the intellectual and moral fiber of the laborer is a psychologic factor which employers recognize has a large bearing on the labor situation.

To a limited extent the same thing is true of specialism in medicine. Its trend is toward materialism. First, it has taken out a large number of physicians from general medicine, and assigned them to limited fields of thought and practice. The lay world has noted the change with sadness in a few instances, but has not yet awakened to the seriousness of the situation. The family physician had become an institution in the community. He was bound to his clientele by the indissoluble ties of affection, confidence, and confession. Let us grant that he knew less of the intricate mechanism of the body and its functioning, but acknowledge him as gifted in the study of the individual as an entity—his heredity; his endowments and weaknesses; his reactions to physical and mental stresses. These things he knew first hand. How different his from the specialist's viewpoint. One makes a lifetime study of the individual as a whole; the other takes a momentary glance at a limited area—at substance, a thing, an organ, and not the coordinated, functioning organism as a whole. Specialism sees tubercles about the ureteral orifice, or notes the "choked disk" of brain tumor; clarifies a situation by a positive Wassermann or discovers by the x-ray an operable cancer of the colon. How fine it all is! Let us give full credit here where credit is due. But it is just as certainly true that the specialist, in his hot pursuit for cold facts, loses ardor for the sentimental, moral, and spiritual elements of man. He develops hypertrophic mentality along special lines but atrophy of spiritual and moral sense for the sacredness of the human body and human life. Too often the goal sought is ambition,—a new method, a record on operations, or a consuming desire for volume of business; this, rather than service as a physician, ministering to the comfort and happiness of mankind in the healing or alleviation of disease.

The specialist who achieves large business success is in grave danger of becoming narrow and self-sufficient. Who would dare question his opinion, so superior upon his special subject? Counsel would only jeopardize the patient's chances. To his way of thinking, what general practitioner would have the temerity, for example, to suggest that a tonsillar operation be postponed in view of a rapid heart, suspecting blood stream infection; or that tachycardia in a patient with enlarged thyroid might be due to incipient pulmonary tuberculosis; or again that pain in the McBurney area might presage an outbreak of pneumonia? In some this self-sufficiency may become arrogance, as conceited and offensive as in the ignorant rich. This type of man is prone to boastfulness in the matter of his reading and study: "I have no time for anything except my specialty," is his vain and self-satisfied assertion. His type is exceptional but too prevalent.

On the other hand, there are a considerable number of special men who seek in every posible way to enlarge perspective. The eminent surgeon, Nicholas Senn, was such. Often in the course of his lectures or clinical presentations he was wont to pause rather dramatically, saying: "The

surgeon is a *physician* who operates." His implication, of course, was that he had no patience with the narrow special man, and that the real surgeon must have breadth of view, comprehending the whole field of medicine. Three or four years ago another surgeon of distinction spoke to me of post graduate studies he had been making. In reply to my remark that I supposed he had devoted himself entirely to his particular field of abdominal surgery, he replied: "O no! I took laboratory courses and work in physical diagnosis." This man, an ex-president of this Association, is beloved throughout the country for his fine spirit, his sterling character and his great ability. Toward his sick-bed of invalidism the whole profession turns to salute a hero,—a man four-square and measuring up to the highest ideals of specialism.

Science Consistently Humble

Whether we accept the Biblical account of the Creation or not, it cannot be controverted that man ranks first in the creative order. The human body is the most wonderful temple we know about—a house not made with hands. It is, therefore, a sacred temple. For centuries past this has been the idealistic conception of medicine. What matters it to us, if it be the body of a pauper or millionaire, saint or sinner, Negro or Chinese, idiot or seer—to us it bears the divine impress. Before this shrine we bow, as true physicians, with humility and reverence, taking no account of age, social status, or mental condition. To us life, human life, becomes a sacred thing, whether *in utero*, in the mature individual of amazing complexity and power, or in the aged seer, rich in achievement. All alike command us to reverent duty as custodians of the earthly tenement and its occupant! With such a conception we are not likely to tear down that which we cannot build up; and we shall view wanton mutilation of the body in the name of surgery as criminal.

In this connection it is pertinent to ask if the advent of asepsis and improved surgical technic has not ofttimes led to forgetfulness of these truths? The prevailing opinion of the layman is that we *do forget*. A brief historic review of surgical evolution during the past four decades will offer convincing evidence that the charge is true. Too often we have displayed the common human weakness of yielding to fads; despising the old simply because it *is* old, forsaking the steady light of proved knowledge for the glare of a rocket shot into the professional sky. Thirty-five years ago what burdens of offense were charged to the ovaries! These organs were sacrificed and mutilated for neuralgia, neurasthenia, hysteria, dysmenorrhea, epilepsy, and insanity; and to what end? Woman was robbed of her greatest function; her body was deprived of an important internal secretion; and the diagnosis ultimately shifted from the surgeon to the neurologist.

Following closely upon this procedure has come the appalling multiplication of abdominal and other major operations, many of them imperative, most of them justifiable, but a considerable residue unwarranted if not criminal. It is rather disheartening to those of thoughtful mind to observe the insidious hardening of the medical conscience; to note the haste and lightness of thought with which major surgical attack is advised and undertaken. Very often not even time is taken for painstaking study of the patient from every angle. Instead, a short-cut method is pursued. "We will open the abdomen and see," expresses the unscientific procedure followed. It becomes our bounden duty to inquire if perhaps there is not at the present time an orgy of surgical excess? Everywhere hospitals, everywhere surgeons, many of them excellent, some indifferently equipped, others bad! Already in the wake of this surgical excess are appearing unfortunate sequelae, sure to increase in the near, oncoming years. No one appreciates this more fully than the abler specialists themselves. For the correction of this trend there must come to everyone essaying to do major surgical work a new baptism of reverence for the sacred human body. Let every specialist get out of the rut where he sees only the special part or thing, and look upon the man—the pulsating, reacting, thinking man with a human soul!

Must Standardize the Specialists

The public, long insistent upon specialism, is now awakening to the fact that it is not an unmixed blessing. Generally, the layman acknowledges great benefits from its wise ministration; but on the other hand he occasionally runs the gamut of specialists, isms, and cults; drifting from uncertainty to uncertainty, with waning confidence and depleting purse. Finally, in dire extremity he exclaims: "O, for a Doctor! An old fashioned doctor! One who is willing to get acquainted with my family, learn their weakness and idiosyncrasies; ready to serve them by day and by night; able to treat them for typhoid fever, pneumonia, and measles; a man to whom I can tell my secrets and not be afraid!"

To this bewailing appeal let it be said with assurance that "the doctor of the old school," the physician who treated every malady to which flesh is heir, is gone, never to return. Beloved of memory and idealized in literature, he served well his day and generation. We note with sadness his passing and may seek to revive many of his virtues. Modern progress insists upon a new and better order, which is being wrought out through specialism. Since it is a product of human effort, it is but natural there should be some of the faults of human weakness. But with all its shortcomings naught will hinder the triumphant forward march of specialism.

With the rapidly changing conditions of the industrial, commercial, and civic world must come corresponding changes in the methods and requirements of our professional life. To meet these in the proper spirit and work out their solution with intelligence and justice is a paramount duty at this time. Several important agencies are already engaged in trying to remedy present evils. Splendid advancement has been made by the State Boards of Medical Registration in raising the requirements for medical practice. The Council on Medical Education of the American Medical Association performed a noteworthy service to medical education in elevating the standard of requirements for medical colleges. Similar effort now being made to standardize hospitals is a move in the right direction. The National Research Council is reaching out for cooperative effort from general practitioners and specialists in the study of clinical, statistical, and other problems of practical and scientific interest to the profession. The scope of influence of these various organized activities is necessarily limited and does not afford the protection to the public which it has a right to expect. Some method must be devised for a more inclusive standardization of those worthy to be classified as specialist.

It would seem that in the near future the State must assume the responsibility for those qualified to practice in special fields.

Any critique of specialism is incomplete which does not reckon fairly with the general practitioner. It is sad but true that the advent of specialism has cast a shadow of despondency over the man in general medicine. He is obsessed with the feeling that he has descended in the

scale of professional prestige and esteem. Before his imagination there passes in vivid review the memory of sleepless nights, of jaded nerves, of piteous appeals from poor, and arrogant demands from the rich; of things he would read pushed aside by things which must be done; of belated vacations and of thankless, thoughtless clientele turning from the family doctor with indifference to shout the praises of specialism. When asked by the stranger if he is a specialist he replies apologetically: "No, I am only a general practitioner." What has come over the spirit of his dreams? Wherefore does he thus indulge in self-depreciation? Why have others less worthy, perhaps, and less serviceful, marched past him with flying banners, receiving the world's acclaim while he has remained behind, a pack-horse carrying the impedimenta and bearing the chief burden in the heat of the day? What can be done to save the general practitioner from himself,—for his own sake and for pressing community needs as well? How shall he adapt himself to the changing conditions of the time; how keep pace with the progress of specialism?

First, he must be brought to the realization that his job, rightly performed, carries greater responsibilities and offers larger opportunities than any specialty. At the present time he does not believe this. How can the fact be brought home to him? The truth should be inculcated early in professional life. The province of the medical education should be to produce high grade general practitioners—not specialists. The latter are a later evolution. Specialists will make themselves. Eradicate from the minds of students the idea that any sort of preparation will suffice for general practice. Here, of all places, training should be thorough. History-taking, clinical observation, and physical examination must be developed by the student to the degree of a fine art. These are the indispensable instruments with which the general practitioner hews a way through the entangling forests of signs and symptoms to the open plain of light and truth. Why cast them aside for short cut methods in diagnosis? When used rightly, they yield information generally more important than the microscope, the test tube, the guinea-pig or the x-ray. The woodman were as wise to cast aside the axe, with the assertion that he will clear the forest with a chisel and auger.

In the next place, there needs to be developed among general practitioners an *ésprit des corps*,—a loyalty and solidarity of effort for mutual betterment. There must be the increased mingling of those engaged in general practice which begets enthusiasm, clinical alertness, and scientific morale. In this way will be aroused a consciousness of the magnitude and dignity of the work, and a pride in the accomplishment of its great tasks.

In the future advancement of the profession, general practitioners and specialists will cooperate more fully one with another. The old idea of professional exclusiveness and selfishness is rapidly passing. The medical society has led the way. Medical men need only to be brought together to prove that their interests are mutual and not antagonistic. *That* man is apt to be a poor doctor who has not as his most trusted and beloved friend *another* doctor. This spirit of goodfellowship is becoming manifest all over the country in the assembling of physicians' offices in the same building; or in the more intimate association of men in groups. Special and general men are associating themselves not so much for financial reasons as to study medical problems in common. The phenomenal success of the Rochester Clinic has given tremendous momentum to this idea. But human nature and varying human capability make the plan impossible of universal application. Insuperable difficulty lies, first, in the securing of men adequately prepared in the respective fields; and, secondly, in the uncertainty of harmonious adjustment in determining the relative expense and remuneration of the group members. Complex partnerships are prone to end disastrously. More likely to succeed is a simple partnership of two or three who assume the burden of financial responsibility and management, and who are willing to pay liberally for the services of specialist associates and technicians. The group plan will prove highly successful in a few instances. More frequently it will fail because of professional, financial, or temperamental incompatibility of the members. In the very nature of things, only a small number can ever come under such a régime.

The Benefits of Contact

In a larger way what leaven may be planted in the greater professional mass that will finally leaven the whole lump? There must come a more intimate association of practitioners. The medical society has accomplished incalculable good in this direction, but its benign influence must be multiplied an hundredfold. For example, what fine professional advantage would accrue if all physicians of accredited standing in a smaller city had their offices in the same building; if they maintained in common a comfortable room in which were housed a good library containing the best medical books and journals, an attendant and telephone—a center of friendly rendezvous where it would be customary to meet often; to listen to reviews of recent medical articles of unusual nature; exhibit cases, demonstrate specimens, and technical methods! Out of such friendly association should grow naturally the impulse to study in a cooperative way many problems.

In the past, data upon which professional knowledge is based have come largely from public institutions. Why should not that much larger clientele *who pay*, also contribute to the common fund of medical knowledge? Having different environment, is it not true that careful investigations will probably reveal different results? Conclusions drawn from such observations, if systematically and carefully carried out, will tell more accurately of things as they actually exist in practice than institutional investigation. The study of epidemiology; occupational diseases; problems of hygiene and public health; of work in relation to the cause and cure of cardiovascular disease and tuberculosis; of diet in Bright's disease and diabetes, but give an inkling of investigations which might be undertaken by the general practitioner, if the work were promptly organized and directed.

A problem of especial interest to the general practitioner has arisen from the multiplicity of expense, from special examinations often necessary in obscure cases. Patients of ample means may run the gamut of specialists without protest; but to the man of moderate income the expense becomes prohibitive. The latter makes up the bulk of the general practitioner's clientele. They are worthy and are entitled to thorough diagnostic study. For their relief the State will in the near future be forced to maintain thoroughly equipped diagnostic clinics. Whether our private interests will it or not, he is indeed blind who does not see that such is the inevitable trend of public demand. Twenty-five years ago private laboratory workers made cultures for diphtheria, stained sputum for tubercle bacilli, and urethral pus for Gonococci. A little later the Widal test for typhoid, the complement fixation test for tuberculosis, and now the Wassermann for syphilis—all at first private enterprises, now are

taken over largely as public functions. The wide range of diagnostic usefulness of the x-ray with its charges prohibitive to the man of ordinary means, will compel ultimately the establishment of public x-ray laboratories where only a nominal charge will be made. These evolutions are working a hardship to private laboratory workers. The public, however, will not concern itself with the interests of a small class. Its slogan will be the greatest good to the greatest number. It ill becomes us as intelligent professional men to behave toward these changes with reactionary vehemence. Rather let us gracefully accept the trend of events, adapting ourselves to the changing conditions and directing their course.

This brief review of the trend toward state medicine is given to show what should be its bearing upon the general practitioner. Here soon will be placed at his disposal most of the technical, diagnostic procedures. He will be spared their tedium and escape the expense of their maintenance. Nor does this signify that his work will be less dignified or important.

His business will be to correlate and interpret the findings; to look at each disease problem as a whole—the causative factor, the clinical course and the measures to induce prevention, amelioration or cure. He will have more time for reading and study of cases. Awakened conscience and duty will require it. The public have a right to demand it. The specialists and technicians of the public clinic who will furnish the data for his consideration are his lieutenants and captains; he must be the general to direct and command. His position is the one of chief responsibilty and honor. He should be able to judge wisely of the material submitted. He will study the map of the individual's life, pointing out where in the past physical defeat has been suffered and where, in the future, foes will lurk. It will be for him to direct the course to pursue and indicate where reinforcements will be needed in the battle against disease. Such is the dignified position which the general practitioner of the future must occupy if medicine lives up to its traditions and fulfills its ideals in the future as it has done in the past.

Service Has Its Rewards

Lastly, it should be noted that in this age of pressing commercialism the general practitioner has been prone to forget the chief recompense for his sacrifices and drudgeries. Upon the altar of self-denial and service to his fellows he burns out selfishness and narrowness of spirit. Behold eternal friendships and undying gratitude, no less from those high in the walks of life than from the most lowly; from the joyously triumphant as well as from the sick at heart and those bowed low with grief. His heart pours out unceasingly in sympathetic and helpful ministrations. This his greatest opportunity, his greatest reward—a reward which comes seldom to the specialist. The latter thus misses one of the finest privileges of professional life. Its absence is apt to beget in his nature a cold, selfish materialism which drags him to the level of a tradesman bidding for business. This the gravest danger of the specialist from which he must save himself.

Fraternity is the watchword of the age. The tocsin of war upon selfishness was sounded nineteen hundred and twenty years ago. Although the world has often wavered from the ancient exhortation, it has been shaken to its senses by the greatest war of history. The terrible conflict, with its immeasurable sacrifice of treasure and countless human lives, has brought a little nearer the brotherhood of man. The second lesson of the World War is that in union there is strength and that by sympathetic and loyal cooperation great achievement results. In the profession of medicine a splendid past cheers our hope and nerves our courage for a more glorious future. True to the traditional ideals of our profession, let us, like the knights of old, train every unit in preparation for the battle against disease. Troops of general practitioners and troops of specialists there must be, but all are of the medical army to which we owe allegiance.

CAN HEALTH BE TAUGHT?

This pertinent question has been recently asked and answered editorially by the *New York Times*, in whose opinion the fact that campaigns to that end seem paradoxical to some is probably because of the imperfections of the human mind.

It is our custom to regard physical ills as a subject for deep sympathy, and moral lapses as deserving sharp reprobation. In the far and fabled land of Erewhon, as readers of Samuel Butler's satire will recall, the situation is precisely reversed. A banker who had been detected in embezzlement received flowers and visits of condolence, and was otherwise made much of, quite as we treat an invalid. But amid these festivities he caught cold, whereupon he was bundled off to a dark room, and his afflicted household was gravely perplexed to find an excuse to shield his iniquity. If he had been discovered, he would have been sent to jail. The point of the satire is plain. Weakness of character and moral obliquity are largely hereditary; they can sometimes be ameliorated, but never wholly removed. Bodily health is for the most part subject to control. People who are wise in their eating, sleeping and exercise have daily use of their maximum strength and are virtually immune from diseases of infection.

The campaign of the Bureau of Education, now being waged in Washington, D. C., is directed primarily against malnutrition. The child's weight and height are recorded and compared with the development which has been determined as normal for his age. Complexion, blood, circulation, and breathing may be likewise recorded. As applied to early infancy, the process is well known to modern mothers, and the only occasion for wonder is that it has not hitherto been continued in childhood and adolescence.

Health teaching has proved to be a powerful ally in the teaching of hygiene, and its results are more immediate and practical. Children, like the rest of us, are easily interested in themselves and quick to appreciate the improvement which a little care will make in their good looks, well being and efficiency. *School Life*, the organ of the Bureau of Education, devotes the current number to an account of the growth of the new movement, its methods and achievements.

STUDY CAUSES OF LONGEVITY

A study of persons who have lived to be seventy years of age or more has been undertaken by Benzion Liber, M.D., D.P.H., 61 Hamilton Place, New York City, with the purpose of discovering the cause why their lives have been longer than that of the average man, and in the hope that conclusions may be reached which will help in the prolongation of the life of others. The collaboration of physicians, public health officers and social workers is desired. Those sufficiently interested in health conservation to give this matter some of their time whenever they meet an old man or an old woman will be supplied by Dr. Liber with copies of his questionnaire.

PRESENT DAY SOCIAL HYGIENE PROBLEMS

By LEE ALEXANDER STONE, M.D., Surgeon (R), Regional Consultant, United States Public Health Service, Chicago, Ill.

THE time must come in the affairs of men and women in this country when a single standard of morals will exist, and anything which will interfere with putting into force such a standard should meet with the disapproval of those who feel that the greatest thing, after all, is the conservation of the race in order that a greater and mightier civilization may grow out of the present.

To return to the original matter under discussion. Syphilis, like its brother, gonorrhea, unless carefully treated, may destroy; syphilis is more deadly to the human economy than gonorrhea because its virus may penetrate to the most remote corners of the body. No disease known to man is as capable of as much physical destruction. It may attack the nervous system and produce locomotor ataxia, or cause hemorrhage in the brain of the young man under forty and bring about paralysis, or cause paresis—softening of the brain. All of these conditions are produced by syphilis alone. Rotting ulcers of the body, decay of bones, even to the extent of producing deformity through their being eaten entirely away, are the frequent results of a failure properly to treat this disease. These effects are noticeable on the individual who has failed to take treatment after having contracted the disease either through illicit sexual union, or through the use of a dirty drinking cup, face towel, razor, or shaving brush used by a syphilitic, or sometimes through inheritance.

If the effects of syphilis stopped with the individual first infected, and treatment could be administered that would be curative, all might be well; but, unfortunately, curative measures require years of administration, and syphilis may be transmitted to the next generation born after the one in which the sower of wild oats had his fling. To go through maternity hospitals where hundreds of babies are born yearly and there witness the mark of this scourge on the bodies of the innocent children who should have been born with a clean heritage and inherent strength from their parents, should be enough to force strong men and women into a fight that would have as its goal the whipping of venereal disease.

Of all syphilitic children, 80 per cent die within a few days or months following birth, while of the remaining 20 per cent, many die before they reach puberty, and those who live usually become weaklings either mentally or physically. Inherited syphilis is one of the major causes for idiocy, and many a girl who offers her body for sale on the streets is what scientists call a moron, or a high grade idiot, she having inherited in most instances from a syphilitic ancestor causes for the mental deficiency that made her a moral delinquent.

For the benefit of those who may doubt the statement that the average prostitute is feeble-minded, the following statistics should prove helpful:

Chicago Morals Court:

639 habitual prostitutes examined.

85.8 per cent feeble-minded.

104 sexually immoral girls in Illinois Training School for Girls.

97 per cent feeble-minded.

Massachusetts Vice Commission:

300 prostitutes examined in three groups of 100 each.

1. Young girls just beginning.
2. Street walkers.
3. Old offenders.

50 per cent of all were so mentally deficient as to warrant confinement. They came from degenerate families.

Massachusetts Reformatory for Women showed that out of 243 women examined in connection with history of commercialized prostitution in their care—

49 per cent defective mentally.

16½ per cent very dull.

Out of the remaining 84 women, 47 had other defects: epilepsy, hysteria, and psychopathic defects.

15 per cent normal appearance.

Bedford State Reformatory. Dr. Katherine B. Davis reported a study of 647 prostitutes:

29.8 per cent feeble-minded, 20 of whom were classed as insane.

107 distinctly feeble-minded.

193 insane or insane tendencies.

New York Probation Association. Of 500 delinquent girls:

37 per cent mentally defective.

Illinois prostitutes under same care:

35 per cent mentally defective.

26 per cent (included in above).

35 per cent feeble-minded.

Massachusetts Reformatory. Dr. Edith R. Spaulding reports:

205 sex offenders.

50 per cent mentally defective.

40 per cent segregable to prevent propagation of undesirables or degenerates.

Psychologist of Massachusetts Reformatory for Women, Dr. Catherine Brammick, reports:

Of 260 women admitted in eleven months, 178 were for sex offenses.

Of the remainder, practically all have been guilty of sex offenses, but were committed for other crimes, as drunkenness, larceny, etc.

149 committed as prostitutes.

42 per cent of these readily classed as feeble-minded.

A. F. Treadgold says, "My experience is that about one-half the girls admitted into Magdalen Homes on account of first fall are feeble-minded."

Social Service Department of Michigan Department of Health, Detroit. Report of Josephine S. Davis:

60 prostitutes arrested.

21 feeble-minded.

13 subnormal.

1 feeble-minded and defective.

1 epileptic.

3 insane.

8 paranoid trend.

2 psychopathic.

11 non-psychopathic.

Eleemosynary institutions of one type or another—jails, penitentiaries, insane hospitals, homes for the feeble-minded, etc.—are all monuments erected to the wild oats sower, and in them their inmates may trace in most instances the causes for their incarceration to inherited or acquired syphilis, which, while though not actually producing the discrasias of the disease itself, leaves a weakened brain or body.

An Awakening of the public conscience is necessary if this country is to overcome the effects of venereal diseases. *Unless something is done, and at once, syphilization will replace civilization,* and the citizens of this nation will become decadents totally unfit to carry on the affairs of state or to breed a race that should have in its blood an inherent power sufficient to make itself felt the world over.

The World War has made this country a world power. No longer will the United States be able to sit back complacently and speak of its isolation. Her sons, by their valorous actions on the fields of France, proved to the world that a new and vigorous type of manhood was to be found in the nation that boasted of its broad democracy.

A new democracy was born out of the womb of War, a democracy that really teaches brotherhood. Across the seas, where men fought and died together, no question was raised as to caste or to the possession of wealth; the one qualification asked for and demanded was an ability on the part of men to stand up and deliver. The man who delivered the goods, whether he was the son of a washerwoman or the scion of a house of wealth, was the man most sought after. So it is today, the man or woman who can do the greatest good for society and who can stand up and deliver the goods is the one society is looking toward to bring about the change that must come and make order where chaos has been.

Ignorance the Blighting Curse

Education must be more sought after than it has been in the past. More attention must be paid to the developing intellects of children and of young men and women. If instruction along lines of social and sex hygiene was of aid in making the United States Army of four million men the healthiest and the strongest in the world, certainly the oncoming generation will be benefited by similar teaching in order that it, too, may be strengthened and forewarned and forearmed against the deadliest menace known to man. By proper instruction of the next generation it will be prepared to give battle to the evils of darkness and drive them into the light of day, where they may be viewed and treated accordingly.

Children must receive a type of instruction that will enable them to know better how to overcome the possibility of falling into error. Ignorance is the blighting curse of humanity. Ignorance with regard to the powers of reproduction has sent many a girl into the dark chamber of despair (she would have been spared had her parents been honest with her), to be kicked and stoned by a mob who, had it met the Nazarene, would have cringed under the same rebuke He uttered to the one which brought before Him the woman who had sinned. "Let him who is without sin among you cast the first stone at her." No men or women can ever throw stones until they themselves have been purged by the fires of knowledge and have become teachers of new ethical standards.

Children should not be answered with a lie when they ask questions, but should be told the truth in a plain manner that will cause them to have a wholesome respect for that which called them into being—the reproductive impulse.

If the parent instructs the child in a proper manner and the child goes wrong, it may do so deliberately, and the father or mother will feel no need for self-blame. On the other hand, if the parent does not instruct and the child errs, then the blame may be placed on the shoulders of the ones who should have safeguarded the child by eliminating the curse of ignorance from its life.

It should be the proud boast of parents that they have so thoroughly instructed their children in the vital things of life as to cause them to know that if ever they are tempted, their chances of falling will be minimized. If daughters who are to be the future mothers of the race could be made to see the reason for their demanding clean bills of health from sweethearts who may propose marriage to them, again would there be a reduction in the causes for racial decay. Men should feel proud of women who would ask for a guarantee of good health from them. These women would be fulfilling in the greatest measure natural laws that define motherhood as being that something which, when brought to the highest development, will give to the world children with a promise of becoming greater beings than the mothers or fathers who called them into existence.

High minded citizens and scientists are fighting for better babies. Better babies can be born only through the exaltation of motherhood and fatherhood. Only through the inforcement of a single standard of morals, and the development of greater ethical standards for men and women in their sexual relationships, can the future salvation of the race be guaranteed.

Just so long as racial poisons are allowed to permeate the warp and woof of the fabric from which civilizations are made, just that long will weaklings be born who can never expect to forge ahead and make this Country the greatest nation in the world. Not until the things mentioned before have been put into practice will society see the elimination of the wrecks lust and licentiousness have made of those who have lived lives of sensuality and contracted disease in the living. Just so long as women are considered the lawful prey of men and are made to become prostitutes in order to gratify the lustful appeties of brutes—prostitution being a man-made institution and the human family the only one wherein even a semblance of prostitution exists,—civilization will remain at a standstill, and such after results of venereal disease as early insanity, perversion, degeneracy, mental aberration, and other mental and physical defects will be apparent, and racial decay will stalk through the aisles society has made for it through the neglect of those fundamental principles enunciated by nature.

Every year, in the autumn, fairs are held in different states in the Union. Pedigreed animals of all kinds are shown and valuable prizes given for the fine physical qualities they are capable of displaying. Not one of the animals shown but has a long pedigree; his dam and sire are known to have been bred right, and the process of fine breeding may be traced back in some instances six and eight generations.

The United States Department of Agriculture spends millions of dollars yearly bringing up to standard animals and plants, and its published reports are full of the results obtained through selection of the fit and the elimination of the unfit. If such things are possible with animals, why are they not possible with humans? Why cannot men and women be brought to see the advantages of bringing into the world more children of quality?

Must Look to Our Lineage

If the more intelligent men and women would look around them whenever they leave their own homes, they could not help seeing on the streets the many hopeless and helpless beings whose pedigrees may be traced back to degenerate ancestors. It is not an unusual sight to see a poor mother, who is not only ignorant and illiterate, but apparently mentally deficient, with four or five weak and puny children hanging onto her trying to lead them

along. No attention has ever been paid to her ability to breed a type of offspring of which society should feel proud; she is merely a machine of faulty construction capable only of developing faulty material to reflect discredit on her. No attempt is ever made to aid her to improve herself and her surroundings. She is regarded as being an unfortunate and consequently is forgotten by society. Those who go into the slums of a great or small city usually draw their skirts aside from those poor individuals for whom they themselves are responsible. There they see nature at its lowest ebb and shrink from it.

Attention must be paid to the rearing of children, and men and women in whose bodies lies a cause for racial decay must not be permitted to call into existence beings who are bound to become a drag on humanity. Men and women who are unfit should be sterilized.

Homes for the incarceration of the feeble-minded must be built, and all morons and those suffering from weakened mentalities, that make them unfit to fight life's battles, should be placed in them. These individuals should be sterilized at once, in order that their seed might not bring forth a weakened offspring.

As has been intimated before, the only way possible for the present generation to win its fight against venereal diseases and their attendant terrors will be by education of the public to familiarize it with all the dangers of syphilis and gonorrhea; the education to be left in the hands of sane medical men and equally sane laymen and laywomen who at heart are more interested in the future of the race than they are in dollar gain and in inquisitorial methods of reform.

To carry education to a fitting conclusion, those suffering from venereal diseases must be made to see the advantages of medication and long treatment. To this end there must be established clinics where those who cannot afford to pay for treatment from specialists may receive it free. These must be manned by competent individuals who are entirely familiar with the treatment of gonorrhea and syphilis, and who are at the same time able to inspire the confidence of the patients attending these clinics, in order that they may carry to others a knowledge of the careful treatment they are receiving. A clinic to be properly run must inspire confidence; patients attending it must be made to feel that everything known to medical science is being done for them, and that the end in view is to develop them into good citizens again as free from disease as treatment will make them. Hospitals, wherein men and women infected with venereal disease may be sent and detained, must be built in order that treatment may be forced on those who are careless.

The United States Public Health Service, in 1918-19 and to July, 1920, through an appropriation made by Congress, was able to give every state in the Union that has laws looking toward the treating and quarantining of venereal diseases, sufficient, which, when doubled by the legislatures of the states, made it possible to carry on a vigorous fight for the control of gonorrhea and syphilis. This appropriation will be continued until July, 1921.

"The distinction between today in action and the days gone by is that the unit is no longer the sick man, but the community and the people affected—or likely to be affected—considered as a whole. We do not mean that the individual is disregarded. We do mean that the regard had of him does not stop within the confines of his sick-room, but envisages him rather as a risk, a focus of conflagration—than a cause. It is symptomatic of a new era. And the distinctive mark of the new era is education of the people, not only education but enlistment as a fighting corps against preventable disease. Inspection, a pitiless publicity, freedom of discussion, recognition that mock modesty is intolerable—these are part of the new measures."*

The following statements sum up all of the arguments offered in this article and express in plain language results to be expected if society does not awaken to a full realization of its responsibility and pledge to eliminate race poisons from its midst.

Syphilis is declared by Osler to be the greatest destroyer of the human race.

At least eight to twelve per cent of all deaths are caused by syphilis. Most of such deaths are reported as heart disease, apoplexy, paralysis, locomotor ataxia, insanity, disease of the arteries, kidney diseases, or liver diseases.

The investigations of the most competent experts show that fully 10 per cent of the total population of this country are affected with syphilis, either active or latent.

Syphilis is directly heritable. It causes nearly one-half of all abortions, miscarriages, and stillbirths. Eighty per cent of the children of syphilitic parents die in early life.

Syphilis is the one racial poison, reducing the race standard by the breeding of mental delinquents, moral degenerates, and physically impaired. It is probably the greatest causative factor in inefficiency, insanity, pauperism, and crime. Thousands of persons, while supposing themselves cured, are harboring latent syphilis as a potent cause of degenerate progeny in the death of the victims themselves in middle life. In many cases death will be preceded by paralysis, insanity, or some chronic illness in which syphilis might not be suspected.

Insurance companies have found the death rate among people supposedly cured of syphilis to be double the rate of those who never had it.

Fully 25 per cent of the inmates of institutions for the insane and feeble-minded show active syphilis, and many more are there because of syphilitic ancestry.

Gonorrhea is the most common of all diseases except measles, and by far the most common, counting only cases which are at present infected.

Gonorrhea is responsible for 80 per cent of blindness of the newborn and for 25 per cent of all blindness.

Gonorrhea is directly responsible for about 75 per cent of the appallingly great number of abdominal operations on women, and for a large percentage of all so-called female troubles. The woman is usually an innocent victim of her husband's earlier indiscretions. Men should *know* they are cured—not just *think* so. In men gonorrhea causes sterility, rheumatism, heart disease, bladder trouble, stricture, prostatic trouble, and other complications.

Syphilis and gonorrhea cause more suffering and death than small-pox, diphtheria, infantile paralysis, and tuberculosis combined.

Where the Menace May Be Feared

In every city in the United States the "masher" or "male flirt" is to be seen on nearly every prominent street ogling women. This "street cootie," or "jelly bean," as he is called in certain sections of the country, is a barnacle on society and should be scraped off as being of no value to civilization. He attempts flirtations because of his lack of respect for women. He views every woman as being a purveyor of sensuality and as his prospective prey. He is at all times ready to pounce on innocence and to take advantage of its ignorance in order to accomplish his vile ends.

Many assert that flirting is an innocent pastime. It

*Louisville, Ky., Herald.

is, if the usual result of flirting—seduction—is considered proper. The average "masher," "street cootie," or "jelly bean" is more anxious to attack the virtuous girl or woman than he is to seek the company of those who sell their bodies for money. If parents would realize this and would warn their daughters, there would be fewer "brands to be plucked from the burning." If philanthropists and good men and women would understand this, hundreds of girls who from economic reasons have no parlors wherein they may entertain their sweethearts and must use street corners to meet men would be saved the degredation of being forced into prostitution, which in nearly every instance follows seduction.

Many times a girl in a spirit of fun will return a look or smile from a "masher" who may approach her, without realizing her danger. Too frequently these flirtations ripen into what may be mistaken for friendship, or even love, before she finds out the character of her supposed admirer too late to save herself from being burned by the scorching flames of sensuality and misplaced confidence.

Men who seek to take advantage of girls or women are usually diseased with either gonorrhea or syphilis, or both, contracted in the sowing of their wild oats. These individuals become a most prolific source for the spread of venereal diseases. They infect, during the first sexual embrace, women into whose ears they whisper words of love and promises of marriage. These misguided females, when they discover that they have become the victims of misplaced confidence through their ignorance of the wiles of their seducers and then learn that society's hand, to its shame, is turned against them, become social avengers. Thousands of women who are selling their bodies are getting a type of revenge on the institution that sent them into the "dark corners" that is sapping at the very vitals of civilization itself. The vendetta carried on by them is destroying its millions. They feed the flames of lust and burn with the fires of disease, bodies that might otherwise have remained pure and clean.

Because of its failure fully to appreciate the necessity for destruction of the causes for racial decay, society has been for centuries paying the penalty, and the penalty will become heavier each year unless vigorous methods are adopted whereby lust may be torn out by the roots. This can be accomplished only through a single standard of morality and through educational methods that will show the necessity for insisting upon continence in young men until marriage occurs.

Results of this nature cannot be accomplished by conspicuous reformers or by the sexually frigid. Only those who know what it means to fight a dominating sex appetite can ever expect to make themselves felt in a fight for a vigorous and strong race possessing inherent capacities for breeding strong children upon whose shoulders will fall the mantle of their parents to "carry on" after they are dead.

A vigorous campaign for the breaking up of loafing places wherein young men congregate should be started. The loafer, like venereal disease, is a "social menace." He is usually a teller of "dirty stories" to young men and an aid in starting them on the road downward. It is from his lips that the innocent first hear the polluted story of reproduction and first learn to regard girls and young women as being creatures put on earth for the sensual and sexual gratification of males. The pool room is the greatest harbinger of sex crimes to be found in any city. Instead of reformers attacking the "tobacco evil," which is more or less of an innocent pastime, they should busy themselves with things which involve civic welfare, certainly the pool room is a civic menace and as far as possible should be done away with.

The civic conscience should force the enactment of laws that would absolutely forbid the gathering together of small or large groups on sidewalks of the main thoroughfares of cities. Unless a man or group of men is able to give valid reasons for stopping on the streets, they should be forced to move on by the police. New Orleans has such a law, which has worked admirably for years.

The masher should be arrested. His punishment should be imprisonment, rather than a fine; in fact, a law that would refuse him bail and allow the judge no recourse to other than a sentence of imprisonment would go a long way towards his elimination. *Radical* measures are the only ones to be depended upon to clean up cities wherein are to be found causes for degeneracy.

One of the chief reasons for the non-enforcement of laws that will regulate loafing, mashing, etc., is civic apathy and hypocrisy, too many citizens maintaining that sexual indulgence is necessary for the physical welfare of young men before marriage. Another type of hypocrisy is mock modesty, which already has been briefly discussed.

Every citizen, whether he be business man, lawyer, doctor, politician, preacher, or policeman, should be made to realize that the "wild oats sower" or "masher" is desirous of attacking the virginity of the daughter he loves so well. It is an obligation he owes himself to protect his home. By safeguarding it he is doing his bit towards protecting the city in which he lives. He should see that laws that will guarantee safety to his virginal daughters are enforced.

The popularity of the automobile has made many sex crimes possible. Many an unprotected girl has been assaulted or persuaded to sacrifice her virginity by dissolute scions of homes wherein there is means sufficient to purchase automobiles for them. The lure of a "joy ride" has caused the "downfall" of hundreds of girls.

Freedom Merges into License

Parents are not careful enough of the society their children keep, therefore making their ruin easier of accomplishment. With the existence of too great a freedom today between the sexes and by the exposure of too much of the female body through an immodesty of dress that is in vogue, temptations that should be condemned are thrown in the way of young men. It is hoped that some day women, to use a phrase made popular by long usage, will again "wear enough clothing to hide their nakedness."

What has become of the chaperone of old, who performed her duties so well? The author can remember when in his youth he went to call upon a young lady that he was constantly aware of the fact that in the next room or somewhere close by was a guardian whose sole interest was centered in seeing that the welfare of the young lady he was calling upon was safeguarded. The young man in those days suffered no feeling of restraint nor did the girl; they took it for granted that her presence was proper. This guardian of the drawing room or parlor became a student of the characters of the young men who called upon the girl under her charge, and more than once was innocence saved from an attack from sensualism by her ever watchful eye. A chaperone who was a diplomat and knew how to advise the young was always popular. Proper chaperonage of young couples is to be desired. Certainly, now that the world is so vitally interested in the salvation of the race, young women and their escorts should be provided with a proper guardianship that would protect them from themselves and in many

instances from a flaring up of sex passion which might be mistaken for love, and thus many a false step could be prevented which might mean the ruining of their future lives. No normal and healthy minded young man whose intentions were pure would ever object to having his actions with his sweetheart supervised; his very love would cause him to desire it.

If the press would give publicity to sex crimes and would constantly advocate editorially their punishment, a social revolution would develop which would make it impossible for the sex criminal to exist. The newspaper is possibly the greatest agency for the dissemination of knowledge. It wields the balance of power and can do more towards cleaning up agencies of evil that spread racial scourges abroad than can sermons, lectures or pamphlets; these agencies are a mere drop in the bucket compared to the broad and beneficent influence of the press.

The influence of the preacher and the lecturer must not be decried. Their field of operation is broad and they should take advantage of their every opportunity to spread the gospel of social science and of venereal disease prevention abroad.

Humanitarian sermons and lectures can do much to change society's attitude toward the double moral standard and to bring, through pitiless publicity, venereal diseases into the light of day, where they may be attacked and destroyed. The pamphlet is a valuable aid in any campaign; it becomes a permanent record to be kept and reread from time to time. Pamphleteering in the fight against social diseases has already resulted in great good being accomplished, as can be attested by the United States Public Health Service and by state boards of health, through which institutions millions of pamphlets have been circulated on the subject of venereal disease. The public has been very much interested in reading any literature on the subject of the prevention of gonorrhea and syphilis. This literature is distributed without cost, and requests for it come in by the thousands. The United States Public Health Service or any state board of health stands ready to supply individuals, societies, schools, universities, colleges, or churches with pamphlets that will enlighten, and fit them to spread the gospel of social hygiene.

There can be no excuse on the part of parents today for ignorance, and those who profess it are in danger of having harsh criticism heaped on them by those who are interested in the elimination of prurience, hypocrisy and mock modesty, and who are trying to raise social and ethical standards to a point where they may be pointed to with pride as being the outcome of education and war.

Wholesome Community Life Needed

Each city should have community houses located wherever large groups of people live. "Civic Centers" should take pride in seeing that they are kept up. These community houses should be fitted up as clubs with club rooms and also with special parlors for use by boys and girls, where a degree of privacy may be had by them in their love making. Games of all sorts, including ten-pin alleys, should be provided, and a man and a woman employed to teach men and women how to play. Weekly dances, where the modern dance would be taboo and where the waltz and two-step would come back into its own, should be held under the chaperonage of men and women who possess humanitarian spirits and a knowledge of the needs of young people. Picture shows and amateur theatricals might be put on every few nights in an auditorium which should be a part of every community house. The services of expert entertainers and lecturers could be obtained at a very small cost.

A gathering place for boys and girls who have never had such a thing before, that would guide their play and at the same time provide wholesome amusement and the spending of a few hours of leisure in social communion, would do much to minimize the committing of sex crimes. A community which shows an interest in the welfare of its people is one wherein there is usually less vice.

Every church or public building that is not constantly in use should provide a means wherein a miniature community house can be located. Religious denominations as a rule have done very little for the social betterment of the neighborhoods wherein their churches occupy the most valuable property.

A spirit of "We'll all pull together" in any movement will eventually accomplish wonders, and should be encouraged by those who are thinking most about the future welfare of the race.

No city should count itself complete without a Young Women's Christian Association building. The Young Women's Christian Association offers a haven of refuge for hundreds of girls who find it necessary to earn their own living. Under the careful supervision of the splendid type of women who manage these buildings, girls and older women are made to feel that their interests are being looked after. Also a type of chaperonage is provided that actually protects girls from the terrors of a form of espionage that is nearly always present in the average cheap boarding house from a type of male who is unable to control his sex appetite and considers the working girl his prey.

These boarding homes, this is really what they are, provide living quarters at very reasonable rates to women who work or who may be attending school, or to transients who are unaccompanied by men. Usually a very superior cafeteria is maintained in connection with these institutions where food is sold at a very low price. The author has been told that through the careful management of the women who administer the Young Women's Christian Association at Madison, Wis., the profits from their cafeteria, open to the public, have in the few years it has been running paid for their building. Here the Young Women's Christian Association provides a general parlor where social gatherings are held and where a type of wholesome friendships may develop among women that will last a lifetime. These institutions make for morality in any community and teach a broad humanitarianism to women that makes them better employees, and afterwards, when the right man comes along and claims them, better wives and mothers. It would be impossible to overestimate the value of a Young Women's Christian Association to a city.

Any movement which has behind it sound principles for the improvement of society and the elimination of vice should receive careful consideration from parents and those interested in seeing the young womanhood and young manhood of America rise above mediocrity should fight to reach the highest point attainable to civilization.

The mothers must force themselves into a breach that has become very wide because of lax ethical standards and fight as they have never fought before for the principles that involve the very heart of the world, principles which, if put into practice, will make oncoming generations clean.

Every mother carries in her body the seed of a potential hero or heroine. Because of mock modesty, prurience, or hypocrisy, are these potentialities to be ruined? Are the women willing to engage in a battle that women can win

if their hearts are put into the cause? Or would they rather have their sons and daughters grow up ignorant—not innocent—and let them learn from the gutter things which will forever taint them and render them, in part at least, unable to "carry on" toward perfection of our present civilization?

Men are but instruments put into the hands of women to hew out of the rocks of time a pattern that shall exist for eternity. Man is but a pigmy compared to woman. From the wonderful laboratory under her heart he was conceived. He drank deep of the very nectar of her existence. She taught him, after he was born, to love and to hope. She gave him the elements of education that made him great or made him small. Through her he received a conception of God that would last him throughout his life. He is nothing more than the hand on the dial of the clock of the universe. The power of woman is the controlling force that drives the hand forward. The hand indicates only that which the propelling force intends that it shall.

Women have lived long enough in the dark forest of ignorance resulting from the paternal form of civilization which has enslaved them. If they are capable of giving birth to heroes, they certainly must possess the power to make heroines of themselves.

The full emancipation of women is at hand. Unfortunately, at present their fate is in the hands of women who, in our humble opinion, are not great. As yet they are in parrot fashion aping the tactics of men in resorting to political clap-trappery that will not do them credit. After the big brained, noble mothers of the race, who are not biologic non-essentials but who have actually brought into existence new entities, fully grasp the meaning of freedom and what it means to be released from man-made serfdom, they will blaze a trail in which men will be glad to follow. They, through the true elements of womanliness, will win over the present day "suffragette."

Men and women in America must cease being "whited sepulchers" and must come out from under the cloud of pharisaism and demand that the divine principles of nature be freed from the taint of diseases that produce degeneracy and interfere with the perfecting of the human machine.

Pay heed to the command of the prophet of old: "Arise ye; do that work which will cause your names to be placed in the halls of the blessed." The work is yours. Vice, with its diseases which destroy the fabric of society, is challenging you to mortal combat. Will you not don, as did the Maid of Orleans, the armor of truth and pledge yourselves to fight Lust, that men shall sanctify your names for having brought light into a place where once it was dark? Keep as your motto: "Above all nations humanity shall excel."

Listen to this wail of a heart-broken mother:

Through long and shattering pain I gave you birth;
It would have been far easier to have died,
But you, my baby, drew me back to life
By love and joy and pride.

And when God called on me to lay aside
My dreams for you and give His Cause, my boy,
I sent you out to fight—perhaps to die—
With pride and love and joy.

You have not died—you have not even fought—
Today I suffer more than all the pains
Your being cost. My pride, my joy, are gone—
Nothing but loves remains.

For all the service that you might have given,
And all the honor that you might have won,
You squandered for a harlot's poisoned kiss—
My son, O God! my son! —*Amelia J. Burr.*

Those desiring information as to the location of venereal disease clinics may obtain it by communicating with their state Board of Health or with the Surgeon General of the United States Public Health Service, Washington, D. C. The state boards of health are prepared to supply literature bearing on the control of venereal diseases and on the problems of social hygiene. Literature may be obtained also from the United States Public Health Service, which is cooperating with state boards of health.

AMERICAN LAWS FAVOR LABOR

As a part of their Americanization propaganda, the following summary is issued by the Inter-Racial Council as to the various methods of securing justice for the worker in the United States:

Laws enacted during 1919 to protect the lives and health of labor, contribute largely to the constructive movement, supported by both employers and employees, to help solve industrial problems by applying legislative methods, not as a matter of sentiment, but of sound economics.

This is indicated by the adoption of workmen's compensation in four more states—Missouri, Tennessee, Alabama and North Dakota, the last named state enacting an advanced law which provides for administering the compensation insurance in an exclusive state fund.

More than thirty states amended their compensation laws, generally along the line of more liberal cash and medical benefits for injured workers, shorter waiting periods before the payments begin, and wider scope. Ten states raised their scale of compensation so that there are now twenty-two states which provide compensation for injured workers of 60 to 66⅔ per cent of their wages.

Women's hours were reduced in half a dozen states, including an eight hour law in Utah and a nine hour limit in Massachusetts, secured after a full half century's struggle. Minimum wage laws for women and children were enacted in two additional states, North Dakota and Texas, making fourteen now in force, in addition to the District of Columbia.

Labor laws fared well last year in the courts. The United States Supreme Court upheld the women's eight hour law and workmen's compensation law of Arizona. The Supreme Court of North Dakota upheld the new workmen's compensation law in that state, including the exclusive state insurance fund. A Federal judge in North Carolina ruled against the new national Child Labor Law in a cotton mill case, but a final decision has not yet been handed down by the United States Supreme Court.

LEAGUE TO FIGHT TYPHUS

The typhus epidemic in Poland presents one of the most serious problems now before the League of Nations. The Typhus Commission of the League has asked its members to contribute $8,000,000 for fighting the plague in Poland and for protecting the rest of the world from a spread of the infection.

The campaign against typhus is especially difficult, according to Norman White, M.D., typhoid commissioner of the League of Nations, because soap, fuel, and other essentials of cleanliness are unprocurable, or extremely difficult to obtain. At the same time, there is a constant stream of refugees crossing the Polish border, many of them infected with typhus contracted in Russia.

The danger which an uncontrolled epidemic of typhus in Poland presents to the rest of the world is shown by the fact that in 1848 three hundred thousand persons died of this disease in Ireland.

BOOKS OF THE MONTH

Comment on Current Medical and Health Literature and Announcements of New Books

PASTEUR—THE HISTORY OF A MIND. By Emile Duclaux, late member of the Institute of France, professor at the Sorbonne and director of the Pasteur Institute. Translated by Erwin F. Smith and Florence Hedges, pathologists of the United States Department of Agriculture.[1]

This is more than a history of a mind. It is a history of scientific achievement in many lines of endeavor which contracted the powerful force of Pasteur's personality. The book, although technical in many spots, is full of interest—interest in part divided between Pasteur and his biography. As a biography it deserves a place in every medical man's library. As a historical treatise on many scientific fields it has a similar value.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE. Practical Points for Students and Practitioners. By E. M. Brockbank, M. D. (Vict.), F. R. C. P., Hon. Physician, royal Infirmary, Manchester; lecturer in clinical medicine, dean of clinical instruction, University of Manchester.[2]

The fourth edition of this little book contains just as much as previous editions had contained. Like all small books of this kind it has a definite value, especially in the teaching field.

THE DUODENAL TUBE AND ITS POSSIBILITIES. By Max Einhorn, M. D., professor of medicine at the New York Postgraduate Medical School.[3]

Contemporary medical history is being made around the duodenal tube. To the author of this book belongs a great share of the credit for the introduction of the duodenal tube into medical practice, for the development of its use and the extension of its application. Einhorn has collected in this volume most of his papers and has put in a very attractive readable form modern knowledge and future possibilities of the duodenal tube. Incidentally, the book is beautifully gotten up. The illustrations are excellent, the typing and paper work unusually good.

EXOPHTHALMIC GOITER AND ITS NONSURGICAL TREATMENT. By Israel Bram, M. D., instructor in clinical medicine, Jefferson Medical College, Philadelphia, Pa.[4]

This book contains a very good review of the subject of exophthalmic goiter as studied from the literature as well as from the author's personal experience. In many instances it is regrettable that the book has appeared just at the time it did, as certain important contemporary subjects are not given the consideration warranted by the present day thought on them. For instance, in the discussion of the differential diagnosis between exophthalmic goiter, "shell-shock," or the irritable heart of soldiers, we miss reference to Peabody's excellent work on this subject. The work of basal metabolism received scant notice, although surely the work of Boothby, Rowntree, McCaskey, and others has shown that in basal metabolism we have a means of quantitative determination of the degree of thyroid disturbance as well as of the effects of treatment.

We also think that in a book of this sort greater effort should be made to standardize nomenclature. The type of disease presented agrees with the classifications of Plummer, but the use of different names is confusing.

The discussion of the nonsurgical treatment is full of excellent detail which any internist attempting to handle these patients will find of value.

YOUR HEART AND HOW TO TAKE CARE OF IT. By Robert H. Babcock, M. D., LL. D. Author of "Diseases of the Heart and Arterial System," etc.[5]

This volume of 235 pages gives concise instructions to the individual with heart disease on how to live in order to get the most service from his impaired organ. It explains the meaning of the various symptoms of broken compensation while showing the unimportance of the various manifestations which cause unnecessary anxiety to the hypochondriac. It instructs the man with arteriosclerosis how to modify his life in order to stay the process. Most important, the author not only shows how careless or too strenuous living causes damage to the vascular system but devotes a great deal of space to the effect of the various infections, especially the Streptococcus, on the heart. The importance of proper care during attacks of infections, whether tonsilitis, rheumatism, or a common "cold," in order to avoid damage to the heart, is dwelt upon at length.

THE NOSE, PARANASAL SINUSES, NASOLACRIMAL PASSAGEWAYS, AND OLFACTORY ORGAN IN MAN. A Genetic Developmental and Anatomico-Physiological Consideration. By J. Parsons Schaeffer, A.M., M.D., Ph.D.[6]

The importance of inflammatory processes of the nose and paranasal sinuses as an etiological factor in the production of morbid anatomy in closely associated structures, and more generally when classed as focal areas in more remote disease, is calling forth at the present time much study and thought. This book comes as a valuable aid to clear understanding of the development, status in childhood and in maturity of these structures, covering in its twelve chapters the embryology, anatomy, and physiology, an understanding necessary to an appreciation of variations from the typical, or from the normal, and to the carrying out of treatment and prognosis.

This valuable monograph makes it possible for the student to go far toward the mastery of the subject with this treatise alone.

1. W. B. Saunders Company, Philadelphia, 1920.
2. Paul B. Hoeber, New York.
3. W. B. Saunders Company, Philadelphia, 1920.
4. C. V. Mosby Company, St. Louis, 1920.
5. George H. Doran Co., New York, 1918.
6. P. Blakiston's Son & Co., Philadelphia, 1920.

A NURSE'S HANDBOOK OF OBSTETRICS. By Joseph Brown Cooke, M.D. Ninth Edition revised and enlarged by Carolyn E. Gray, R.N., University of Pennsylvania.[9]

A work appearing in its ninth edition does not call for a detailed description of its contents or specific features; it has definitely established its value and is known to all teachers of obstetrics. With every new edition the authors have added some new material to incorporate latest advances in knowledge, or to discuss newer problems of general interest, in this new edition such features cover chiefly the question of public nursing. This endeavor to keep the work abreast with recent progress in itself surely is most commendable, but inevitably it leads to a steady increase in the size of the volume, which is an undesirable and, indeed, objectionable feature, but one that could easily be obviated in the next edition by the elimination of some unnecessary matter, such as references to details of operations, pathologic conditions, etc. Overtraining of nurses, at least in part, is responsible for the present unsatisfactory nursing situation in this country. Books of this character tend to force on the pupil nurse much knowledge she does not require.

HOME NURSING. By Abbie Z. Marsh, Portland, Ore.[10]

In the belief of the author of this interesting little volume, hospitals will help, but hardly ever will entirely solve the problem of caring for illness. Home care, at least of those not very seriously sick, is a question calling at this time for most careful consideration. The writer of this book is of the opinion that the principles of home nursing could be successfully taught in the school in connection with domestic science and should be included in benefit of such more or less compulsory instruction would seem obvious.

Taking for granted an elementary knowledge of anatomy, physiology and hygiene, as already commonly taught, the author presents her own subject of home nursing in three distinct parts. Part I deals with the technic of nursing and takes up the larger part of the book. Presumably this subject could be covered in fifteen lessons of from one to two hours each. Part II presents the symptoms of and simple methods of dealing with the common diseases. The volume ends with Part III, discussing the care and feeding of infants. Parts II and III would not necessarily be included in the public school course, but cannot fail to prove of great value as reference and safe guide in the student's future needs.

The book is written in simple language, is well illustrated, and serves a purpose worthy of most serious consideration under present economic conditions.

THE SOCIAL PROBLEM. A Reconstructive Analysis. By Charles A. Ellwood, Ph.D., professor of sociology in the University of Missouri. Author of "Introduction to Social Psychology," "Sociology and Modern Social Problems," etc.[11]

Nothing new is added in this contribution by Ellwood to his former contributions on social psychology, but according to principles previously enunciated, he makes a highly interesting analysis of the psychologic causes underlying existing social disorganization.

Civilization, he says, is at bottom of the creation and transmission of social values by which men regulate their conduct and the immediate roots of civilization are always in the mental values of individuals. He sees dehumanizing conditions in industrialism and disintegration as the result of materialistic ideals of life. The real cause of the Great World War is to be found in our predatory tradition, the doctrine of the spoliation of one's competitors as the surest means of advancing one's self, and the same forces, still operative, make for the present disorganization.

The remedy is to be found in a synthetic view of social life. He warns against one-sided views and remedies. Effective control must be attained by the control of all factors of importance—heredity, environment, economics, and, most of all, the development of individual character through education. We live together by the mutual exchange of services, goods, and sacrifices and the theory of spoilation is a delusion.

No static solution of the social problem is possible. The recognition of the solidarity of the interests of classes, nations, and races will make for that plasticity of personal opinion, and of institution which provides for growth and new adaptations.

He holds that "Social Progress does not come automatically, that it must be intermediated by thought and effort; that a process of social reconstruction, if it is to endure, must be an educational process; and that education is therefore all important in social reconstruction. We shall build the superior society of the future just as we produce the superior engine—by scientifically trained minds that know social facts and forces so that they can map out and plan a superior social organization which in turn shall produce individuals of superior intelligence and character."

THE CONTROL OF HUNGER IN HEALTH AND DISEASE. By Anton Julius Carlson, Professor of Physiology in the University of Chicago.[12]

The Control of Hunger in Health and Disease is a report by Anton Julius Carlson of work done in the University of Chicago. This study of the stomach was made with special reference to appetite and hunger and was carried through a period of four years. Methods for studying the tonus and contractions of the empty stomach are given as (1) direct inspection, by means of a gastric fistula, (2) the introduction of a rubber balloon into the stomach, either through the esophagus or the gastric fistula; (3) the introduction into the stomach of a balloon coated with bismuth paste on the inside. These three methods were all used by Professor Carlson and details of procedure are given including specific directions for work as well as the results, and observations in each case.

A chapter on the Relation of Hunger to Appetite points out the fallacy of the opinion commonly held, particularly by the laity, that hunger and appetite are sensations of the same quality, differing only in intensity. This view is no longer accepted by those who have given attention to the subject. Professor Carlson emphasizes the need for further investigations and urges that more intensive work in this field be done by the medical man and biologist.

Since it is a well recognized fact that control of hunger and appetite influence greatly the control of disease, particularly of chronic disorders, the continuance of this study would be a valuable contribution to science. We look for the cooperation of the physiologist and the clinician as the logical ones to carry these investigations further. In reading this summary, one is impressed with the fact that the work was very carefully done, therefore, a good foundation is already laid for this research work. As it stands it affords the best and most accurate record available of work in this important field.

9. J. B. Lippincott Company, Philadelphia, 1920.
10. P. Blakiston's Sons & Co., Philadelphia, 1920.
11. The Macmillan Company, New York, 1919.
12. University of Chicago Press, Chicago, 1918.

CUNNINGHAM'S MANUAL OF PRACTICAL ANATOMY. Revised and edited by Arthur Robinson, professor of anatomy in the University of Edinburgh. Volume I, Superior Extremity, Inferior Extremity.[13]

With the seventh edition of Cunningham's Manual of Practical Anatomy a triplet of little green books will take the place of the well known twins. New descriptive matter and many new cuts have been added and, in order to maintain the present size of the books, their number was increased.

The addition of the x-ray photographs is a great improvement. Judging from Volume I (the only volume which as yet has reached the reviewer) normal anatomy from a radiographic point of view will be well covered. The idea of demonstrating the relation of the blood vessels to the bones by means of roentgenograms of injected specimens is an excellent one.

Another point which should receive favorable comment is the retention of the B.N.A. nomenclature along with the old terminology. During the war there was a tendency among English and American writers to give up the B.N.A. names. We are glad to see that Dr. Arthur Robinson, the editor of the seventh edition, has not been influenced by this tendency, but still believes that a single nomenclature universally adopted by scientific men is preferable to the present confusion.

DIE EXPERIMENTELLE BAKTERIOLOGIE INFEKTIONSKRANKHEITEN Besonderer Berucksichtigung der Immunitatslehre. Ein Lehrbuch for Studierende Arzte und Medizinalbeamte von Dr. W. Kolle, Direktor des Institutes für experimentelle Therapie, o. Honorarprofessor an der Universitat Frankfurt a. Main, und Dr. H. Hetsch, Prof., Privatdozent, Oberstabsarzt, im sanitatsdepartement des Kreigsministeriums in Berlin.[14]

The popularity of Kolle and Hetsch is very clearly indicated by the rapid appearance of the fifth edition of this brilliant work and its translation into French, Spanish, Italian and Russian, shows in a somewhat universal manner the thoroughness of which its subject is covered and is perhaps the best index of the text's usefulness and the enthusiasm with which it has been received.

The volumes are quite up to date reporting practically all of the work that has been done in Europe since 1914 and gives clearly much of the work that was closed to the allied countries during the war, for this reason it is quite valuable and well deserving to be brought to the attention of the workers in bacteriology and infectious diseases.

Volume one shows an increase of 150 pages and several new chapters over the previous edition. Each chapter, with two exceptions, has been entirely rewritten, additions having been made to the extent that the text is undoubtedly the most modern published in any language. Practically all of the late work done in intestinal diseases—typhoid, cholera, and dysentery,—cerebrospinal meningitis, streptococci, gas bacillus, and pneumococcic infections will be found in their respective chapters. A chapter devoted to botulism has been added which gives very clearly and accurately a splendid description of the organism and its clinical and pathological manifestations. Of particular interest is the chapter on influenza, giving all the data that the German workers obtained during the epidemic of 1918-1919. It can be properly said that this is the most thorough description that has yet appeared in any of the texts relating to bacteriology and infectious diseases.

Volume II has been quite markedly changed. New chapters on Weil's disease, Vincents' angina, chemotherapy, Leishmania, filterable virus, Dengue and Pappataci fever, poliomyelitis, trachoma, verruca peruana and infectious filterable viruses for animals. Typhus fever, Werner-Hiss disease, and bilharziasis, have been added. These additions have materially enhanced the value of the text and serve to make it as complete as any publication of this nature.

The chapter on chemotherapy deserves special mention for it includes a description of the work of Wassermann on the action of selenium compounds in mouse carcinoma, silver salvarsan, and other salvarsan preparations, and a general review of chemotherapy from Ehrlich's first work up to the present, touching the various phases that have been developed along lines other than those of the arsenical preparations.

This work has been arranged in a more logical manner than the previous editions, and the chapters so grouped that they are more relevant. Many diseases will be found carefully and thoroughly described here that are barely every girl's education. The far reaching and general mentioned in the average text. It is more than a textbook, at least in its completeness one can readily see its value as a reference book. Yet it can be recommended to the beginner, especially to those interested in the bacteriology of the infectious diseases, for even the fundamental principles of the general bacteriological methods English translation has not yet been published so that have not been slighted. It is a regrettable fact that an such a useful text might be available to all English speaking bacteriologists.

ARTERIOSCLEROSIS AND HYPERTENSION With Chapters on Blood Pressure. By Louis M. Warfield, A.B., M.D. (Johns Hopkins), F.A.C.P.[15]

Arteriosclerosis is only a symptom, but it is an important symptom or, rather, sign. It tells of the strain of our life, of the difficulties that befall us, of the burden on our heart and blood vessels. It is highly important that some one should interpret the sign, should discuss the whys and wherefores, and should suggest some means of combating it. This task Warfield has undertaken, and he has carried it out quite successfully. He discusses arteriosclerosis from every angle and makes some fine suggestions. The book has gone through three editions.

THE OPERATIVE STORY OF GOITER. The Johns Hopkins Hospital Reports, XIX, Fasciculus II. By Dr. William S. Halsted, Baltimore, Md.[16]

The author has made a most painstaking study of the literature on goiter, relating to early operations. He has studied many cases of reported early excisions of the thyroid and shows that they are not authentic. The undoubted confusion in the minds of early surgeons between actual goiter and diseased lymph glands, he proves. To establish this proof he quotes statements from G. B. Günter's famous work and from many other reliable source, as follows:

According to Schreger, Celsus had already undertaken the extirpation of goiter. But it is clear from the text that in the chapter which Celsus entitles "De Struma" lib. vii, 13, the author, in the use of this term, has not in mind a disease of the thyroid gland, but rather a swelling of the lymph glands. Of goiter proper he speaks in lib. vii, cap. 13, under the title "De Cervicis Vitio." Here he describes, unmistakably, cystic goiter, and says, after discussing the use of caustics, *"sed scalpelli curatio brevior est."*

According to Mandt in Rust's Magazin, xxxvii, 413; and Langbeck, Chirurgie, v, 306 (note), Albucasis is listed among those who performed this operation about the year 330. In the local library I have not been able to find any passages bearing on this.

13. William Wood and Company, New York, 1919.
14. Urban and Schwarzenberg, Berlin, 1919.
15. C. V. Mosby Company, St. Louis, 1920.
16. Philadelphia and London: W. B. Saunders Company, 1919.

You've Been Waiting for Such a Book

PUBLIC HEALTH and HYGIENE

By Eminent Authorities

Edited by WILLIAM HALLOCK PARK, M.D.

PROFESSOR OF BACTERIOLOGY AND HYGIENE, UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE; DIRECTOR OF THE BUREAU OF LABORATORIES, DEPARTMENT OF HEALTH, NEW YORK CITY

Octavo, 884 pages with 123 illustrations. Cloth $10.00 net

A remarkable advance has taken place, in the past few years, in the appreciation of the people and of their officials in regard to the value of public health. This growing opinion that public health is to a large extent purchasable by effort and money, has stimulated health authorities to develop their opportunities and to assume greater responsibilities. The best medical colleges no longer confine their teaching almost wholly to subjects dealing with the diagnosis and treatment of disease, but give thorough courses in hygiene, and its practical application in preventive medicine. The technological schools are providing similar courses to students thinking of entering the field of public health work.

The great advances in our knowledge concerning hygiene and the increasing scope of public health work have led to the creation of many subdivisions and the problems and practices connected with these have become so highly technical as to require public health workers to restrict their activities to special lines. The medical officer for some time has appreciated this. Wherever the community is large enough to afford it, he has obtained the service of specialists to administer and develop the different departments. The department of health of any progressive State or large city has under the administrative head a number of bureaus, each of these under some specialist who has demonstrated his fitness.

The time has passed when any one person can possess the technical knowledge and personal experience required properly to direct and develop all or even several of these different branches of public health work. It is also true that few if any persons can discuss authoritatively more than one or two of these subjects. The report of the American Public Health Association on the control of communicable diseases was consulted in writing the chapter on that subject.

The writers of this book, holding the above opinions, believed that there was need of a volume in which the most important phases of hygiene in relation to public health would be presented in a practical way by specialists actually devoting themselves to the subjects treated by them. The writers have kept in mind that the book is intended for public health officials, physicians and medical students, and each has therefore tried to make his section as practical as possible and to utilize to the full his own personal experience.

CONTENTS

Relation of Microorganisms to Disease
WILLIAM H. PARK, M.D.

Antimicrobal or Antiprotein Substances Individually Considered
WILLIAM H. PARK, M.D., AND CHARLES KRUMWIEDE, M.D. Assistant Director of the Bureau of Laboratories; Associate Professor of Bacteriology and Hygiene, University and Bellevue Hospital Medical College, New York City.

Prevention of Individual Infectious Diseases
WILLIAM H. PARK, M.D.

Practical Use of Disinfectants
WILLIAM H. PARK, M.D.

Epidemiology
GEORGE A. SOPER, PH.D. Major, Sanitary Corps, U. S. A.

Sanitary Surveys
W. L. DODD. Assistant Director of the Department of Sanitation of the Pease Laboratories, New York City; sometime Sanitarian-in-Charge of the Metropolitan Life Insurance Co., New Orleans Sanitary Survey.

Air and Health—Ventilation
C.-E. A. WINSLOW, DR., P.H. Professor of Public Health, Yale School of Medicine; Curator of Public Health, American Museum of Natural History, New York.

Housing
LAWRENCE VEILLER. Secretary of the National Housing Association, New York City.

Food
EDWARD K. DUNHAM, M.D. Lieut.-Colonel, Medical Corps, U. S. A.

Vitamines
ALFRED F. HESS, M.D. Clinical Professor of Pediatrics, New York University and Bellevue Hospital Medical College, New York City.

The Preservation and Adulteration of Food
J. P. ATKINSON, M.S. Chief Chemist, Department of Health; formerly Research Chemist to the Bureau of Laboratories, City of New York.

Bacterial and Other Contaminations of Milk. Their Relation to Public Health
WILLIAM H. PARK, M.D.

Bacterial Infections and Parasitic Diseases from Milk, Meat and Other Foods
WILLIAM H. PARK, M.D.

The Soil
ARTHUR R. GUERARD, M.D. Lecturer on Social Hygiene, New York State Department of Health, New York City.

Water Supplies and Their Purification
JAMES T-B. BOWLES, B.S. Lecturer in Water Supply and Sewage Disposal, New York University, Department of Hygiene, Bellevue Hospital Medical College; in charge of Water Supplies and Purification Plants, Canal Zone, Panama; Sanitary Expert with Expeditionary Forces; Vera Cruz, Mexico; Formerly Lieut.-Col., Sanitary Corps, U. S. Army.

Sewage and Waste Disposal
JAMES T-B. BOWLES, B.S.

Housing and Plumbing
ARTHUR R. GUERARD, M.D.

The Sanitation of Swimming Pools
WALLACE A. MANHEIMER, PH.D. Chairman of the Department of Physical Training, Evander Child's High School; Vice-President of the International Congress on Public Baths, Belgium, 1920.

Personal Hygiene
EUGENE LYMAN FISK, M.D. Medical Director of the Life Extension Institute, New York.

Additional Practical Points in Personal Hygiene
ARTHUR R. GUERARD, M.D.

Military Hygiene
C. W. BERRY, M.D. Lecturer on Military Hygiene, New York University and Bellevue Hospital Medical College; Lecturer on Preventive Medicine, Long Island Medical College, and the Post-Graduate School, New York City; Brigadier-General, New York National Guard; Adjutant-General of the State of New York.

Rural Public Health Work
FRANK OVERTON, M.D., P.H., SC.C. Sanitary Supervisor, New York State Department of Health.

Tropical Hygiene
M. E. CONNOR, M.D. Health Officer, Panama Canal, 1904-1914; Superintendent of the Medical Department, United Fruit Co., Tela, Honduras, 1914-1916; Senior State Director, International Health Board.

Industrial Hygiene
LOUIS I. HARRIS, M.D. Director of Bureau of Preventable Diseases, City of New York; Special Lecturer, Department of Bacteriology and Hygiene, New York University and Bellevue Hospital Medical College; Medical Advisor to the Labor Sanitation Conference, Greater New York.

Child Hygiene
S. JOSEPHINE BAKER, M.D., D.P.H. Director of Bureau of Child Hygiene, Department of Health New York City; Lecturer on Child Hygiene at Teachers' College, Columbia University and New York University and Bellevue Hospital Medical College; Consultant in Child Hygiene, U. S. Public Health Service; Former President of the American Child Hygiene Association.

Sociologic and Economic Aspects of Disease
CHARLES F. BOLDUAN, M.D. Lecturer on Preventive Medicine and Hygiene, College of Physicians and Surgeons (Columbia University), New York; Chief of the Section of Public Health Education, U. S. Public Health Service, Washington, D. C.

Public Health Education
CHARLES F. BOLDUAN, M.D.

Mental Hygiene
AUGUST HOCH, M.D. Late Director, Psychiatric Institute, Manhattan State Hospital for the Insane; late Chief Psychopathologist, Cornell Dispensary, New York.

Mental Defectives. Preventing and Controlling Measures
HENRY H. GODDARD, PH.D. Director of Bureau of Juvenile Research, Columbus, Ohio; formerly Director of the Psychological Laboratory, Vineland Training School, Vineland, N. J.

Maritime Quarantine
LELAND E. COFER, M.D. Surgeon, U. S. Public Health Service; Health Officer of the Port of New York; Member of the Board of Health, N. Y.

Vital Statistics
WILLIAM H. GUILFOY, M.D., Registrar of Records, Department of Health, New York, and SHIRLEY W. WYNNE, M.D. Chief of Division of Statistical Research Department of Health, New York; Member of the Advisory Committee on Statistics, New York Tuberculosis Association.

SEND FOR IT NOW.

(M. M.)

700-10 Sansom St. **LEA & FEBIGER** **Philadelphia**

Send me Park's Public Health and Hygiene for enclosed $10.00.

Name ..... Address .....

MODERN MEDICINE

Incorporating the INTERSTATE MEDICAL JOURNAL.

Published Monthly by

THE MODERN HOSPITAL PUBLISHING CO., Inc.,

OTHO F. BALL M.D., President.

R. S. GROMANN, 1st Vice Pres. A. F. NAGLE, Jr., 2nd Vice Pres.

H. T. McCLURE, Secretary.

22-24 EAST ONTARIO STREET, CHICAGO.

Telephone, Superior 6402

NEW YORK OFFICE

1 Madison Avenue.....Telephone—Gramercy 4623

FOREIGN REPRESENTATIVES

GREAT BRITAIN.....SCIENCE REVIEWS, Ltd.
36-38 Whitefriars Street, Fleet Street, London, E. C.

AUSTRALASIA.....STERLING & CO
Modern Chambers, 317 Collins Street, Melbourne.

SUBSCRIPTION

Domestic postage, $3.00. Foreign postage, $3.50 (15 shillings). Single copies (regular), 25 cents.

Domestic rates include United States, Cuba, Mexico, Porto Rico, Canal Zone, Hawaii, and Philippines.

SUBSCRIPTIONS.—Subscriptions may begin at any time. Volumes begin January except in the case of Volume I, which consists of the numbers issued during 1919 (May to December, inclusive).

REMITTANCES.—Remittances for subscriptions should be made by check, draft, post office or express money order, or registered letter. Make all checks and money orders payable to MODERN MEDICINE.

CHANGE OF ADDRESS.—Notice of change of subscriber's address should give both old and new addresses. Notice should reach us fifteen days in advance of date of publication.

COMMUNICATIONS.—When communications relate to more than one subject (manuscript, reprints, subscriptions, news items, etc.), correspondents will confer a favor by writing on a separate sheet for each subject, thereby insuring more prompt attention.

ADVERTISEMENTS.—The advertising pages of MODERN MEDICINE are available for announcements of anything of interest and service to those engaged in the treatment and care of the sick and especially to those who are devoting their efforts to organized medical and health work. Advertisements of secret remedies and other objectionable announcements will not be accepted. The supervision of the Editors is extended to the advertising columns, in which only approved products and reliable manufacturers will be represented.

CLOSING OF FORMS.—Advertising forms close on the 10th for the issue of the following month. Ample time should be allowed for composition of advertisements and the sending and return of proofs.

ADVERTISING RATES.—Advertising rates will be sent on request.

CONTRIBUTIONS.—Original articles on any problems of practical interest to our readers are respectfully solicited from those who can write authoritatively on current problems in social medicine, hygiene and medical service in industry, public health and allied subjects. Articles are accepted for publication with the understanding that they are contributed solely to MODERN MEDICINE.

ILLUSTRATIONS.—Such half-tones and zinc etchings as in the judgment of the Editors are necessary to illustrate articles will be furnished when photographs, drawings, or ink tracings are supplied by the author.

NEWS MATTER.—Our readers are requested to send in items of news, and also marked copies of newspapers containing matters of interest. We shall be glad to know the name of the sender in every instance.

SUBSCRIPTION BLANK

MODERN MEDICINE,

22-24 East Ontario Street,

Chicago.

You are hereby authorized to enter subscription to MODERN MEDICINE for the undersigned, beginning with the next issue. The price is Three Dollars a year, payable on receipt of statement.

Name _____

Street _____

City _____ State _____

BOOKS OF THE MONTH

(Continued from page 838)

SURGICAL SHOCK AND THE SHOCKLESS OPERATION THROUGH ANOCI-ASSOCIATION. By George W. Crile, M.D., and William E. Lower, M.D. Edited by Amy F. Rowland, B.S.[7]

Crile and Lower discuss shock, its causes and its preventions. They view the subject in the light of their theory of the kinetic drive and do not attempt to give any other views. The main principles of their theory of shock are well known to all who have kept abreast of the modern surgical writings. Shock is the result of a series of afferent nerve impulses which bring about changes in the brain cells and also in other tissues, identical with the changes brought about by exhaustion. The prevention of shock lies in the blocking of these nerve impulses in the afferent limb of the nerve arc.

The first part of the book is devoted to a careful, detailed study of their theory—giving results of numerous laboratory and clinical experiments. On these results a new principle of operative surgery has been founded. Every adequate stimulus, whether from trauma or emotion, predisposes to shock by causing cellular changes in the brain. The inhalation anesthetic excludes psychic stimulation but does not exclude the operative stimuli. The operative stimuli are excluded by careful, gentle manipulations and by blocking the afferent nerve impulses by infiltrating with novocain. The latter two-thirds of the book is devoted to the technic of anociation.

The book is very readable, clear and well illustrated. There are innumerable helpful suggestions as regards pre-operative and postoperative care of the patient, technic of local anesthesia, etc., which will well repay the surgeon for his careful perusal of the work, whether or not he believes in the kinetic drive or holds to any other of the numerous theories of the cause of shock.

INFECTIOUS DISEASES. A Practical Textbook. By Claude Buchanan Ker, M.D., Ed., F.R.C.P., Ed., medical superintendent, City Hospital, Edinburgh, and lecturer on infectious diseases to the University of Edinburgh, etc.[8]

This is the second edition, intended for publication in 1914, but delayed until this year because of the Great War. It is a practical textbook based in the main on the author's personal experience with a very large series of cases. Although its language is not concise, the book is interestingly written, well indexed and has excellent plates.

The signs and symptoms, differential diagnosis, complications and treatment are well handled, but unfortunately the author gives too little attention to the bacteriological phases of infectious diseases. No reference is made to the results of research of the last few years which has defined many of the variables that are factors in the virulence of infections and has demonstrated the serum bactericidal reactions which are the body's last defense against attack.

The last chapter is devoted to the "fever hospital problems" of today, in which the author shows an authoritative knowledge of the situation. There are several contradictory statements in the chapter on measles and too much attention was given to Duke's disease. The book, unfortunately, has the fault of not containing a complete bibliography. This is a serious omission and robs all texts of considerable value as reference books.

On the whole, this book of Ker's can be recommended as an excellent textbook on infectious diseases.

7. W. B. Saunders Company, Philadelphia, 1920.
8. Oxford University Press, New York, 1920.

What Cooks Don't Know About Food Preparation Increases The Mortality Rate

EVERY physician knows that the best medical care, the most scrupulous attention to regimen can be discredited and undone by a course of badly-prepared food—or even by a few meals of improperly-prepared food. Indigestible, or badly-assimilated food, may be the predisposing, if not the exciting cause, of many ailments medical men are commonly called upon to treat.

Butter, goose-grease, lard, and ordinary cooking compounds, which burn at a low temperature, are absorbed into the cell structure of the food—coating over the particles, rendering them infinitely less digestible.

Also, the low burning point of ordinary cooking fats tends to develop acrolein — intensely irritating to the delicate mucosa of the stomach and intestines.

Mazola can be heated to upwards of 650° before burning. The intense heat possible with Mazola cooking sears over the surfaces of the meat, fish, or other food; keeps in the savory juices and meat extracts, and prevents the absorption of the fat used in cooking. This, naturally, increases the digestibility and assimilability of the food.

Mazola is also perfectly delicious, used as a salad oil—replacing olive oil. Mazola carries from one to one and one-half per cent of lecithin—giving it thereby this additional advantage in all nerve exhaustion and wasting conditions.

Advise your patients to use Mazola, Doctor, for all cooking and salad purposes, and help them overcome under-oxydation conditions.

CORN PRODUCTS REFINING COMPANY
17 Battery Place, New York City

MAZOLA IS SOLD BY ALL GROCERS EVERYWHERE

Thorner Brothers

Hospital Supplies and Aseptic Hospital Furniture

388 Second Avenue New York City

"One Quality and One Service—The Best"

Rubber Goods, Glassware, Instruments, Syringes, Brushes, Operating Tables, Cabinets, Stretchers, etc.

"KELENE"

PURE CHLORIDE OF ETHYL

For Local and General

ANAESTHESIA

Manufacturers:

FRIES BROS.

92 Reade Street, NEW YORK

Sole Distributors for the United States and Canada

MERCK & CO.

NEW YORK MONTREAL ST. LOUIS

Literature sent upon request

SERBIAN RELIEF FUND

The annual report of the Serbian Relief Fund just issued affords proof of what American energy, combined with scientific classification, can do in reaching the men deserving of health and those most likely to be permanently benefited by it. Serbian relief has included agricultural relief, the typhus mission, baby hospitals, dispensary ambulances, hospital supplies, clothing for civilian refugees, scholarships for needy students, and regular monthly stipends for young children and for destitute aged women. More than three thousand cases of distress were relieved during the past year, of which number 2,500 are receiving regular allowances. Hundreds of young men and women who are now self-supporting owe their education and health to the Serbian Aid Fund.

MASSACHUSETTS HEALTH COUNCIL

There has been organized recently in Massachusetts by the state-wide health agencies, a Massachusetts Central Health Council, for the purpose of promoting cooperation between the various health activities throughout the State. It is expected that by means of this organization duplication and overlapping of duties may be eliminated and that the financial and legislative needs of health agencies may be supported with increased efficiency.

The initial activities of the Massachusetts Central Health Council will be of an advisory nature. One of the first steps to be taken will be the outlining of the programs and problems of each of the constituent organizations, thus making it clear to each organization what the others are doing and propose to do. It is hoped also that cooperation and counsel may help to clarify the present confusion in regard to the respective duties of health officers and volunteer agencies.

In the new organization are represented public health nursing, child welfare, medical and dental groups, tuberculosis, cancer, state and local health officials, the American Red Cross, and the American Public Health Association. Dr. Enos H. Bigelow, Framingham, is president of the Council; Mr. Arthur G. Rotch, American Red Cross, Boston, vice president; and Mr. A. W. Hedrich, American Public Health Association, Boston, secretary-treasurer.

MICHIGAN CONTROLS DISEASE CARRIERS

Steps are now being taken in Michigan toward the control of communicable disease carriers under a regulation of the Advisory Council of Health.

"Any carriers," reads the regulation now being distributed to physicians and health officers throughout Michigan, "of a dangerous communicable disease that under the rules and regulations of the Michigan Department of Health is subject to quarantine or isolation shall be isolated or quarantined as provided in said rules and regulations, and shall not be permitted to attend any school, church, theater, or other public assemblage, or otherwise come in contact with the public." The term "carrier" is interpreted to apply to any person harboring the virulent organisms of a communicable disease. Though the carrier may not be sick himself, he may spread the virulent organism and cause severe epidemics.

The examination of three hundred school children in one village resulted in the detection of eight diphtheria carriers. The results to be achieved by the pre-school examinations of school children to discover disease carriers is well worth the money cost and effort, according to William J. V. Deacon, M.D., who is the director of the Bureau of Communicable Diseases.

Sleep Restores the Balance of Efficiency

Loss of sleep is a form of starvation more certainly destructive, even, than that resulting from the lack of food.

Sleep, on the other hand, reserves the downward trend caused by our waking activities and elevates us, physically and mentally, to a point of efficiency commensurate with the quality and quantity of sleep we have experienced.

A scientifically built mattress is not the least important factor in inviting sleep of complete relaxation and thus completely restoring the balance of efficiency.

In the Sealy Mattress every requirement of hygienic design, sanitary construction and physiologically correct service has been met. Only antiseptically cleaned long fibre cotton is used and the special air-weave process makes it a complete unit *without tufting.* This mattress invites deep, restful sleep because of its resiliency, and because of the unbroken, smooth surface which molds itself to support every part of the body.

SEALY MATTRESS COMPANY

Sugar Land, Texas

The Palatability of Food
Depends on

Flavor

Flavor stimulates a desire for food to which it is added, and helps the convalescent to take the proper nourishment necessary.

Tempting flavors are important in convalescence when every day's diet counts for rapid recovery and where it is so hard to provide nourishing and wholesome foods that are likewise palatable to the invalid.

SAUER'S
THE NATIONAL EXTRACT
VANILLA AND 32 OTHER FLAVORS

They are made from the choicest materials obtainable in a modern and sanitary plant where every care is taken in their manufacture.

Sauer's Extracts have won seventeen highest awards and medals at American and European Expositions for purity, strength and fine flavor.

The C. F. Sauer Company

Richmond, Virginia

ANALYSIS OF CASE REPORTS

The campaign against venereal disease will be more effectual when better analysis brings out the meaning of certain fundamental facts. By such means we could understand better in what economical groups venereal diseases constitute the greatest menace, at what ages their incidence and prevalence are highest, with what social conditions their prevalence is most directly associated, and what agencies can be used to the greatest advantage in preventive work. An article by C. C. Pierce, assistant Surgeon General, recently published in *Public Health Reports*, argues that venereal disease infections tend to occur most frequently among that class of population which leaves school before education along these lines has been given, and effective means must be devised to carry education where it will do most good.

SURVEY DISEASED TONSILS

The Health Department of the City of Rochester, N. Y., has made a survey of the condition of children's tonsils and the newspaper reports indicate that a startling condition, affecting not only the present health of the children of Rochester but their future well being, and constituting a serious menace to the whole community, has been revealed. The astounding conclusions reached as a result of the investigation are summarized as follows:

That apparently 27,748 children attending the public schools of Rochester have enlarged and diseased tonsils and adenoids and should be operated upon if they are to develop physically and mentally as they should.

That 18,498 of these children presumably belong to families of limited means who cannot afford to pay the fee charged by the regular practitioner for the tonsil-adenoid operations, and must be taken care of at clinics.

That 9,249 of these children belong to well-to-do families, able to pay the regular practitioner, and should be taken care of in regular practice.

The survey reported was a direct result of the recent intensive tonsil-adenoid clinic conducted by the Rochester Dental Dispensary, at which 1,470 children were operated upon during a period of seven weeks. The large number of children appearing for examination at that time and the fact that 2,256 operable cases were listed which could not be given the benefit of the operation, led Dr. George W. Goler, city health officer, to conduct a survey in the schools with a view to determining the number of children in Rochester actually afflicted with the disease-breeding growths.

The throats of 3,187 children attending School No. 20, School No. 23 and School No. 27 were examined by two physicians, one representing the Health Bureau and the other the Rochester Dental Dispensary, both agreeing in the diagnosis made.

These examinations revealed the following facts:

That 2,792 children, or 87 per cent, needed operation for enlarged and diseased tonsils and adenoids.

That of the 2,792 children thus afflicted, only 856, or 26 per cent, had been previously operated, and that 1,936, or 61 per cent, still require the operation.

That in the case of 776 children, or 24 per cent, immediate operation is not urgent; in the case of 762, or 24 per cent, operation is urgent, and in the case of 598, or 19 per cent, operation is very urgent. In all these cases operation not only is desirable, but imperative, from the standpoint of the best physical and mental development of the child. Rochester is the one city which has provided complete service of this character in the interests of preventive medicine and developments are awaited with interest.

HEBE

the new food product reclaims wholesome skimmed milk for human food.

SKIMMED MILK—millions of pounds of it containing the body-building, strength-giving elements so necessary in our diet are wasted annually. And this because lacking a fat content skimmed milk does not appeal to the palate as a beverage, nor does it find acceptance generally as a cooking medium.

Thanks to scientific minds a process has been developed for enriching skimmed milk by emulsifying with it scientifically processed fat pressed from the white meat of the cocoanut. Thus the new food product HEBE is created to serve as an economical auxiliary to the family milk supply for cooking and baking purposes thereby reclaiming skimmed milk for human use and adding materially to the food supply of the nation.

Used in cooking and baking HEBE enriches the food and helps to balance the diet as it contains the protein, carbohydrates and mineral salts of the skimmed milk and the heat and energy units of the vegetable fat.

HEBE is produced under the most sanitary conditions—is put up in hermetically sealed cans and sterilized. The label tells plainly what HEBE is—"a compound of evaporated skimmed milk and vegetable fat" and states that it is not to be used in place of milk for infants. It is just as frankly advertised and marketed.

"HEBE—Its Dietetic and Economic Value" and "Today's Food Problem" are booklets of especial interest to physicians, health officials, dietitians, public health and industrial nurses. They will gladly be sent upon request. Address 3222 Consumers Bldg., Chicago.

THE HEBE COMPANY

CHICAGO SEATTLE

Positive Results Assured

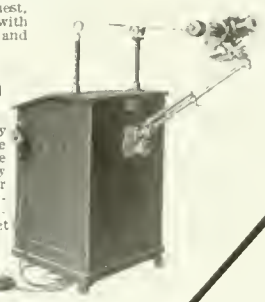
When you use

L-F Coolidge X-Ray Units

Model 530, $960

30 M. A., Variable Gap, 3 to 5"

Expressly adapted to needs of the oral surgeon, who requires films or plates of the frontal and maxillary sinuses as well as intra-oral films; or for installations where both dental and routine medical work is to be done. Fully counterbalanced tube holder. Capable of doing all radiographic work, including chest, stomach and intestinal tract. Equipped with magnetically operated exposure switch and combination cone.



Model 310, $650

10 M. A., 3" Gap

Expressly adapted to strictly dental radiography, having the advantages of the right angle Coolidge Tube. Especially easy and rapid adjustments for intra-oral work; fully counterbalanced tube holder; the complete equipment very compact and easily moved about. Can be operated either with patient in dental chair or separate chair. Operates off ordinary light wiring.

Both outfits are equipped with the L-F automatic switch, which makes possible the accurate timing of all exposures, insuring uniformity of results.

The Liebel-Flarsheim Co.

414 HOME ST., CINCINNATI, O., U. S. A.

Manufacturers of X-Ray Apparatus for the Dentist, General Practitioner, and X-Ray Specialist. Distributors: For the General Electric Co., Portable Coolidge X-Ray Outfit.

The Plant Behind The Product

The Liebel-Flarsheim Co.,
Cincinnati, O.

Please send me, without obligation, further information on Model..... I have ..... volts direct current, ... volts, ...cycles alternating current.

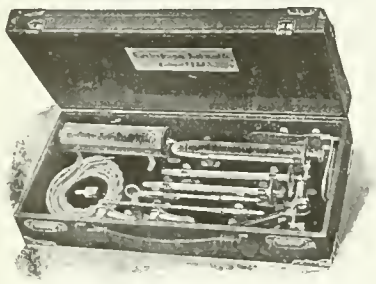
Dr .....

City .....

State .....

Electrically Lighted Surgical Instruments

MODERN DIAGNOSTIC OUTFIT



This outfit weighs but 4½ pounds. All Instruments can be operated by our battery with adapter or upon direct or alternating current by means of our controller.

Illustrated catalogue sent upon request.

The ever increasing demand for electrically lighted surgical instruments is the best proof obtainable of the high position to which they have advanced as diagnostic aids. Moreover, it accentuates forcibly the care to be exercised in the purchase of such instruments.

Instruments of our manufacture are constructed from the ideas and according to the suggestions of eminent physicians. We are originators of diagnostic instruments and we hold the exclusive rights to manufacture such instruments as bear the stamp "E. S. I. CO" This is our trade name, placed upon instruments for your protection.

Electro Surgical Instrument Co.

ROCHESTER, N. Y.

ECONOMIC VALUE OF MEDICINE

In a recent discussion of the work of the Baby Hygiene Association in Boston, Robert D. Curtis, M.D., medical director of the Association, declared that the greatest economic value of medicine lies in its service to infant welfare. The task of preventing sickness and keeping babies well must be carried on if the mortality rate is to be kept down. Such service should be extended so that every baby might at least be kept under observation from the time of birth to school age, when the school physician will take it in charge. The service should be extended to rich and poor alike, so that ultimately it will reach all strata of society. The work of the Society is not among sick children. The sick baby is sent to a hospital and returned to the service of the Association when it is well.

OCCUPATIONAL THERAPY ASSOCIATION ORGANIZED

The workshops at the Walter Reed Hospital, Washington, D. C., have been enlarged to promote facilities for occupational therapy for all those in need of such measures. So important has this phase of treatment become that a special organization has recently been formed by delegates which met at the Walter Reed Hospital on October 12, representing Walter Reed, Providence, Mount Alto, and St. Elizabeth's Hospitals, the Public Health Service, and the Federal Board for Vocational Education. The new Organization will be known as the District of Columbia Association of Occupational Therapy. The following officers were elected: Col. James D. Glennan, M. C., U. S. Army, honorary president; Major A. C. Monohan, Sanitary Corps, U. S. Army, president; Mrs. Helen Smith, vice-president; Miss Elsie Taft, corresponding secretary, and Miss M. Morris, treasurer.

OCCUPATION AND RACE AND HEALTH

An interesting analysis is made by G. Rome Hall, M.D., Durh., in the *Lancet* of June 5, 1920, of certain effects of occupation and race on the health of recruits. More than two million men in England, he says, have feet more or less defective who could have been cured under a State Medical Service supervising their growth. His study emphasizes the far reaching effects and the grave results of the neglect of skin hygiene. Contrary to accepted notions as to clerical occupations being unhealthy, the clerks in his series fell into surprisingly high categories. While there is absolute ill health of the Russian Jews as a whole, the close approximation of Jewish lads of eighteen born abroad, but reared in Britain, to the British standard at the same age, proves there is nothing radically wrong with the physique of the Jewish race.

Dr. Hall's analysis of 2,500 heart cases gave interesting results. Of these only 40 per cent showed excessive myocardial change. The illness of 50 per cent was due to want of tone and minor causes, nearly all quite curable if the people concerned had been in a good financial position. Many of these people will drift into invalidism and national inefficiency for want of a fair chance. Another interesting feature is the proportion of dark to fair people who figure in this cardiac list. Of the 2,500 heart cases, the proportion of dark to fair was three to two, and, since among the other recruits examined, there were two fair to every one dark, heart trouble would appear to be three times as common among the dark elements. As regards hyperthyroid action the dark are affected in the proportion of ten to one.

The Efficiency of Our Employees

Is Reflected in

The Efficiency of Our Product

Scientific apparatus represents more than a combination of material and labor. The interested, efficient, and intelligent cooperation of the workers is needed to produce efficient apparatus.

We have secured such cooperation.

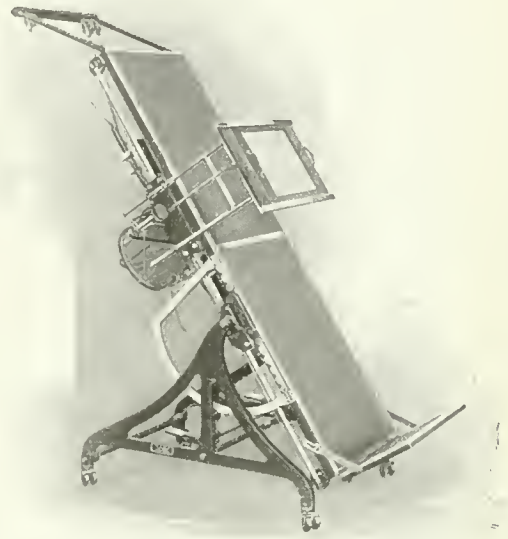
We pay a bonus on production—we penalize defective workmanship.

The man who will not earn a bonus is not wanted. Every employee is an efficiency engineer.

With such support from our organization, the production of QUALITY apparatus is a natural sequence.

Let us tell you about the QUALITY in

Meyer X-Ray Transformers
Meyer Multoscope
Meyer Klinoscope
Meyer Duplex Stereoscope



THE WM. MEYER COMPANY, 1644 N. Girard St., Chicago

Quick Relief

from the painful symptoms of Gonorrhoea will be appreciated by your patients. Gonosan promptly allays the severe pains, the burning and priapism.

In Urethritis and Cystitis

GONOSAN

has proven highly effective in limiting the course and extent of the inflammation. Its comparative freedom from irritating effects upon stomach and kidneys emphasizes its value as the best coadjutor of local treatment.
Literature and samples from

RIEDEL & CO.
87 Thirty-fifth St.
Broklyn, N. Y.

Grains

Puffed to Bubbles

Food Cells Exploded

We seal whole wheat in guns and roll it for an hour in 550 degrees of heat. The trifle of moisture in each food cell is thus changed to steam.

When the guns are shot, over 100 million steam explosions occur in every kernel.

The food cells are blasted for easy digestion. The grains are puffed to bubbles, thin, flimsy and crisp, eight times normal size.

Puffed Rice is whole rice puffed in like way. Corn Puffs are corn hearts puffed.

Puffed Grains, we believe, are generally considered the ideal form of grain food. No other process so fits cereals for digestion.

Puffed Wheat
Puffed Rice
Corn Puffs

SANATORIUM FOR TUBERCULOUS SOLDIERS

The transfer of the tuberculous sanatorium hitherto operated by the Army authorities at Fort Bayard, N. M., will make available to the United States Public Health Service one thousand additional beds for the care of ambulatory cases of tuberculosis in which the prognosis is favorable. Only patients will be admitted whose condition is suitable for treatment in the climate and altitude of this sanatorium, and the patients will probably be drawn principally from the middle and southwest sections of the country.

PUBLIC HEALTH PRESERVES FAMILY TIES

A recent publication of the Metropolitan Life Insurance Company is concerned with the attempts of various governments to provide for widows and their young children in order to keep family units intact. Even with meager provisions, large expenses are being incurred by widows' pension funds and similarly organized efforts for widows and their dependent children. When mothers die and leave children with only the father to care for them, the social damage is almost as great. In such instances, some states attempt to place the child under responsible and well chosen foster mothers. But in either case where children become dependent because of the death of the father or the mother, social damage is serious; for it is in such cases that many children grow up badly and often become delinquents.

It seemed desirable, therefore, to collect data, even if in a preliminary way, to ascertain some of the facts of family damage when a married man or woman dies in wage earners' families. The facts for the families where death occurred during the months of July and August, 1920, in the industrial experience of this company were brought together. There were 663 cases in all, of which 299 represented deaths of husbands leaving surviving wives and 364 deaths of wives leaving surviving husbands. There were 1,605 living children, or an average of 2.4 per family, in all these cases. Thirty-four per cent of the children were less than sixteen years of age, and 9 per cent were under five years old. In 24 per cent of the families, there were no children at all; in 37 per cent of the families there were children under sixteen years of age and in the remainder, or 39 per cent, all the children were over sixteen years. In those cases where the parent was under forty-five at death, and leaving any children, the average number of such children under sixteen was 2.2 per family.

It is also of interest to know the causes which are responsible for the death of parents in these cases, in order to learn how to place a value on public health work as a preventive of broken families. Thus, in the 244 cases having one or more living children under sixteen years of age, tuberculosis was responsible in 65 cases for the death of the parent, or in 27 per cent, the diseases and conditions of the maternal state for 32 deaths, or in 13 per cent; organic heart disease and Bright's disease for 21 deaths each, or 9 per cent; and accidents for 19 deaths, or 8 per cent. Out of 14 accidental deaths of the father, 10 were due to work accidents. Public health work concerned with prevention of tuberculosis, of accidents and of maternal deaths has, therefore, a very important bearing upon the preservation of family ties. Public health activities should receive the support of social workers for the reason that such work helps to safeguard the family and prevents the creation of problems which social agencies must later attempt to solve.

Gonococcus Glycerol-Vaccine

Stable and Effective

Advantages:

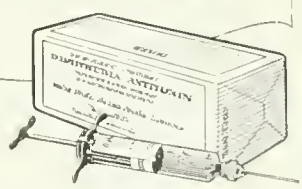
1- Will not deteriorate. 2- Free from autolytic products.
3 – In preliminary trials has not produced toxic reactions even in large doses.

The types of cases reported to us as favorably influenced by Gonococcus Glycerol-Vaccine are chronic gonorrheal infections, including gonorrheal rheumatism, epididymitis, prostatitis and posterior urethritis.

Further Information on Request

LEDERLE ANTITOXIN LABORATORIES
511 FIFTH AVENUE NEW YORK

DIPHTHERIA ANTITOXIN



Shown by Tests to Cause Least Reaction

In a series of comparative tests conducted by the John McCormick Institute for Infectious Diseases, covering 370 cases and extending over a period of 2½ years, our product—which is manufactured under the personal supervision of P. G. Heineman—gave only 3% of slight and moderate (but no severe) serum reactions.

"Since the antitoxin has been administered in a solution of almost pure globulin prepared by Heineman's method, the occurrence of serum reactions has markedly fallen, not only in frequency but also in severity." (Medical Report of the Durand Hospital of the John McCormick Institute for Infectious Diseases—March 12, 1913 to March 12, 1918.)

Our laboratories are producing this high grade concentrated serum in sufficient quantities to ensure immediate delivery of your season's requirements.

Furnished in syringes and vials containing the standard prophylactic and therapeutic doses of from 1,000 to 20,000 units.

United States Standard Products Co.

Gov't License No. 65

Laboratories
Woodworth, Wis.

General Office
111 W. Monroe St.
Chicago

KEEPING TAB ON SICKNESS

The relation of keeping an exact record of the incidence of sickness in industrial plants to the determination of causes of sickness and an intelligent program to eliminate preventable causes constitutes the message of a recent reprint distributed by the United States Public Health Service. The material was prepared by Dean K. Brundage, assistant statistician, and Bernard J. Newman, consulting hygienist, of the American Public Health Service. Its foreword is an argument on sound business policy involved in maintaining adequate health service in industrial plants, and the dependence of such service on a knowledge of the conditions causing ill health peculiar to each specific factory and to each particular occupation or department in the factory. In order that sickness records shall yield all pertinent information, the system of records necessary is outlined and charts suggested which will show all possible factors responsible for occupational diseases.

A comparison of results wholly in favor of the methods advocated is given in a recent report of two adjoining plants having approximately the same number of members residing in the same industrial area in which the establishment that kept such records and had a good medical department kept the incidence of influenza down to 8 per cent, while the other establishment which kept no records and had no medical department had an incidence of 25 per cent of sick employees.

TUBERCULOSIS AMONG THE INDIANS

Subdued gradually by white men from the time when Jean Nicolet first invaded their territory in 1634, the question now arises as to whether Michigan Indians will be exterminated by the great white plague of their white conquerors.

Officials of the Michigan Department of Health believe the Indians will be exterminated in time unless the state makes strenuous efforts to save them. A survey of part of the Indians in the Upper Peninsula, made during the past summer under the direction of Dr. R. M. Olin, state health commissioner, reveals that 63 per cent are either positive or suspected sufferers of tuberculosis.

One of the greatest mistakes which has been made was permitting the Indian to live off the reservations, declared Dr. Olin. While on the reservations he had some supervision. Now he has none, and, knowing absolutely nothing of preventive medicine and hygiene, he is a constant menace, spreading contagion wherever he goes. The change of the Indian's standard of living, from the healthful, vigorous life led a short time ago in the great outdoors, to his present mode of existence has been entirely too revolutionary for his physical well being. Civilization came slowly for white men; it was too abrupt for the red man.

Living as they do, housed in rude huts throughout that part of the state where the winters are most severe, the confined, inactive life that they choose is most favorable for the contact and development of tuberculosis. Even the open-air program of the summer months cannot arrest the disease for them after it is once contracted. White men often recover from tuberculosis; Indians do not take the precautions necessary to do so. The average Indian is most susceptible to other diseases and defects, due to his general weakened condition. We also found that an unusually high percentage of whites who come in contact with the Indians have contracted tuberculosis. Strict supervision on reservations is the only thing that will save the remnants of the Hurons, Ojibwas, and Chippewas in Michigan.

Nine-tenths of our physical ills are due to ignorance and perhaps a still greater proportion of our social evils are due to selfishness.—Ward.

The great reconstructive powers of VIROL

have again and again been exhibited in remarkable cases of Malnutrition, Emaciation, and Wasting, whether from Tuberculosis or other causes.

The series of *Before* and *After* photographs which we have published in this Journal during recent months afford striking illustration of the building-up properties of VIROL.

The value of VIROL in Convalescence from Fevers, Whooping Cough, and Measles, after operations, and in such conditions as Gastritis and Gastric Ulcer, has led to its use in more than 2000 Hospitals, Infirmaries, and Consumption Sanatoria in Great Britain.

VIROL has a marked effect on the metabolism of the body, increasing the production of opsonins and stimulating phagocytosis. As an adjuvant to the natural defensive processes of the patient in all diseases of bacterial origin its value can scarcely be over-estimated. It is, moreover, unequalled as a repairer of tissue waste, and is therefore of especial value in those conditions which are associated with the debilitating influences of the specific fevers.

Liberal samples of VIROL and interesting literature will be mailed to physicians on request.

Virol is composed of Red Marrow, extracted from ox rib and calves' bones by C. P. glycerine; refined Marrow and Beef Fat; highly diastasic Malt Extract; Eggs; Lemon Syrup and soluble phosphates.

IN GLASS JARS:
50c, $1.00 and $2.00

Virol

Sole Agents for U. S.

GEO. C. COOK & CO., Inc., 59 Bank Street, New York

MERCK & CO. NEW YORK · CHEMICAL WORKS, RAHWAY, N.J. · MERCK

On Prescriptions—

Merck's

Anusol
HEMORRHOIDAL
Suppositories

Hemorrhoid sufferers are apt to become dilatory in their bowel movements for fear of painful defecation.

Defecalgesiophobia it has been called.

Anusol Suppositories promptly remove the strain.

And, with it, this most aggravating complication.

Sample on request.

MADE IN U.S.A.
FURNISHED TWELVE IN GREY BOX
WHITE, RED AND BLACK LABEL
AT BEFORE-THE-WAR PRICE.
SCHERING & GLATZ, INC. NEW YORK

SOCIAL SERVICE SCHOOL OPENED

The Missouri School of Social Economy opened for the fall term at St. Louis, Mo., September 20. The school is conducted under the auspices of the University of Missouri, with Dr. George B. Mangold as director. The school is designed to fill the need of trained social workers.

RESEARCH IN NERVOUS DISORDERS

The first session of the Association for Research in Nervous and Mental Diseases is announced to be held in the New York Academy of Medicine, December 28 and 29. After the presidential address of Dr. Walter Timme, reports and discussions will be offered covering every phase of investigation of the subject of "lethargic encephalitis."

RESEARCH INFORMATION BUREAU

The National Research Council has established a research information service as a general clearing house and informational bureau for scientific and industrial research, service on request to be supplied concerning research problems, progress, laboratories, equipment, methods, publications, personnel, etc. Requests for information should be addressed, Research Information Service, National Research Council, 1701 Massachusetts Avenue, Washington, D. C.

FLORIDA AMBULATORY CLINICS

Plans have been announced by Dr. Ralph N. Greene, the state health commissioner of Florida of the organization of ambulatory clinics on a scale that will permit the carrying of public health service to every home in the state. The clinics will be fully equipped for eye, ear, nose and throat work, for dental diseases, and for treatment of hookworm disease. The clinics will operate from headquarters established at the county seats and will work in cooperation with the country health officers.

NEGRO INDUSTRIAL WELFARE

A program calculated to bring into a practical working unit various phases relating to the general problems of negroes in industry, their health, the housing of individual workers, and the provision of adequate and wholesome recreation, was presented at the Annual Industrial Conference of the National Urban League, Newark, N. J., October 20 to 23, 1920, in association with the negro industrial welfare workers. A discussion of wide general interest was concerned with "Health, and How Insurance Companies May Aid in Reducing Mortality." The round table conference of executives and workers included details of organization, personnel, and plans for expansion.

CARELESSNESS AND DEATH

Deaths from whooping cough and from automobile accidents, totaling 398 and 238, respectively, for the first nine months of 1920, in Michigan, are both due to the same cause, according to Dr. William J. V. Deacon, director of the bureau of communicable disease of the Michigan Department of health, and that cause, he asserts, is carelessness.

One-half of the cases of whooping cough occur among children under three years of age, Dr. Deacon declares, and the sole exciting cause is contagion. By far the greater number of children exposed to whooping cough take it. Momentary exposure is enough to transmit the infection to another person, and it is here that carelessness enters in.

Digitan (Digipuratum)

Physiologically Standardized Digitannoids

This product, first introduced as Digipuratum is manufactured under license from the Federal Trade Commission and carefully standardized according to the original tests

RAPID AND RELIABLE IN ACTION

Powder and Tablets, 1½ Grains Each

1 tablet or 1½ grains powder equal to 1½ grains of strongly active digitalis leaves (= 8 frog units)

UNIFORM IN STRENGTH

MERCK & CO.

NEW YORK and ST. LOUIS, MO.

Wanted—Back Numbers of Modern Medicine

MODERN MEDICINE frequently receives orders for back numbers that cannot be supplied. Subscribers having well-preserved copies of the back numbers listed below are invited to get in touch with us so that we may order those for which we have sufficient demand. Our files of the following issues are incomplete: 1919—May, June, August, and October; 1920—January, April, and August.

Back numbers ordered by us will be accepted at the price of 25 cents each, the amount to be applied to the seller's subscription. Copies that have been marked, torn, cut, or badly soiled cannot be used. Do not send any copies until our order has been received.

THE MODERN HOSPITAL PUBLISHING COMPANY, Inc.

Subscription Department

22-24 East Ontario Street **CHICAGO**

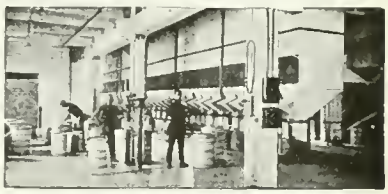
Coffee Prices Are Down

Our price to you drops with the cost to us. You can now have your favorite blend, in same standardized quality, at a considerable saving.

Are you one of our many customers who, having adopted a satisfactory blend, simply tell us from time to time: "Send another lot of our coffee"? We keep a record of your wants, and by our standardization system can always duplicate exactly.

Roasting and Cooling

Grinding and Packing



Bins for Various Blends

Ariston Coffee Cereal Blends

Our Coffee-Cereal Blends—perfect coffee beverages, and not substitutes—also come in for a general reduction from former prices. Note our latest reductions and send us a money-saving order.

The goods are guaranteed. Ship back at our expense if not satisfactory.

Note the following five Blends in placing your order:

Ariston Coffee-Cereal Blend No. 1, per pound	$0.32
Ariston Coffee-Cereal Blend No. 2, per pound	.30
Ariston Coffee-Cereal Blend No. 3, per pound	.28
Ariston Coffee-Cereal Blend No. 4, per pound	.26
Ariston Coffee-Cereal Blend No. 5, per pound	.24

"DEALERS DIRECT WITH YOU"

CALUMET TEA & COFFEE COMPANY

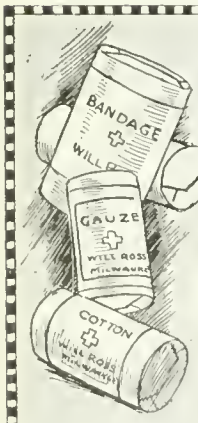
409-411 W. HURON ST. CHICAGO

TRENCH TUBES

IODINE
in the most convenient form
for
INDUSTRIAL FIRST AID

Special Net Price
Any Quantity
$50 Per Thousand Delivered

DAVIS & GECK, INC.
PHYSIOLOGICAL CHEMISTS
217-221 Duffield Street - Brooklyn, N.Y., U.S.A.



INDUSTRIAL SURGEONS
INDUSTRIAL NURSES
VISITING NURSES
HEALTH OFFICERS
PURCHASING AGENTS
DISPENSARIES
CLINICS, ETC.

Gauze
Cotton
Bandages
Sterilizers
Adhesives
Enamelware
First Aid Kits
Thermometers
Rubber Sundries
Sputum Supplies
Paper Goods, etc.

The same satisfactory service that is given to hospitals throughout America in the furnishing of supplies is available to you. Write for our catalogue It lists merchandise of unquestioned quality at prices that will prove of interest to you.

WILL ROSS
SUPPLIES FOR HOSPITALS, SANATORIA AND ALLIED INSTITUTIONS
MILWAUKEE, WIS. STATESAN, WIS.
Milwaukee Offices: 432 Broadway

CORRECTION

The notice of our readers is hereby called to the fact that the tables and charts presented in connection with the article of Dr. M. Edgar Rose on "A Personal Hygiene Demonstration," in the October issue of MODERN MEDICINE, were taken from the Annual Report of the New York State Department of Health for the year 1917.

EXTENSION CLINICS FOR PHYSICIANS

Extensions clinics open to all practising physicians in the state have been organized by the University of Michigan, the clinics to be held on the second Wednesday of each month by members of the staff of the University Hospital, Ann Arbor, including Drs. Christopher G. Parnall, Louis H. Newburgh, James G. Van Zwalenberg, and Hugh Cabot.

CALIFORNIA ON MEDICAL MEASURES

The people of the state of California strongly indorsed the position taken by the medical societies and public health organizations in the recent election, defeating the antivivisection bill, the antivaccination measures, the bill for the creation of a separate chiropractic board, and the effort of osteopaths to secure the right to prescribe drugs. This is one of the first occasions when measures pertaining strictly to medicine have been submitted to popular vote.

SPECIALISTS VISIT TUBERCULOSIS HOSPITALS

A number of eminent specialists in tuberculosis, not members of the Public Health Service, have agreed at the request of Surgeon General H. S. Cummins to visit all service hospitals and to study conditions with a view to standardization and to making such improvements as may suggest themselves. Doctors David Lyman, of Wallingfor, Conn.; Victor Cullen, of the Maryland State Sanitarium; and Martin E. Sloan, of Towson, Md., will officiate in the eastern states; Dr. George Thomas Palmer, Springfield, Ill., in the central states; and Dr. Henry Hoagland and one or more others in the southwestern states. About two weeks will be spent in each hospital.

PUBLIC HEALTH SERVICE NEEDS NURSES

The United States Public Health Service needs hundreds of graduate nurses for its general hospital work, but also and particularly for the care of former soldiers suffering from nervous and mental disorders. So great is its need for the latter class that it is probable that at present enough trained nurses are not available in the country. The Public Health Service, accordingly, purposes to establish a training school for nursing in neuropsychiatric diseases in its Special Hospital No. 49 on Grays Ferry Road, near Philadelphia, where nurses with general training may take a special course in this class of work. This hospital has a capacity of 240 patients and will afford exceptional opportunities for instruction in the most modern treatment.

An appeal is made to nurses to come forward for this work; for if they do not do so there seems to be no one to take their places. The hospitals now operated by the United States Public Health Service are already 150 nurses short; and the Service faces the necessity of opening several new ones with an inadequate force. Applications should be made to the Surgeon General, United States Public Health Service, Washington, D. C.

Arsphenamine products should be:

Readily Soluble
Practically Free from Toxicity
Easy of Administration

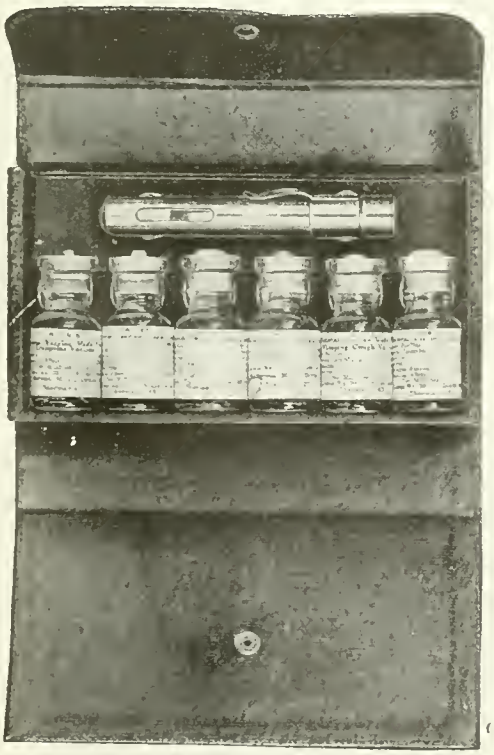
NEOSALVARSAN

(NEOARSPHENAMINE-METZ)

possesses all of these qualities

Order by either name and if your local dealer cannot supply you order direct from

H. A. METZ LABORATORIES, Inc.
122 HUDSON STREET
NEW YORK CITY



SHERMAN'S VACCINE CASE

The best immunizing response in Pneumonia is obtained during the first twenty-four hours after the initial chill. Every hour being vitally important, successful immunologists make inoculations in Respiratory Infections at their first call.

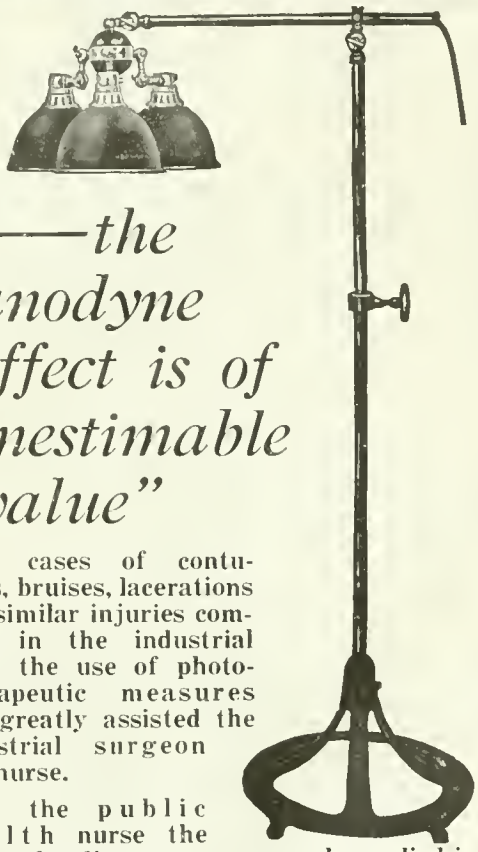
Be prepared; carry an assortment of Sherman's Polyvalent Vaccines and self-sterilizing syringe in this convenient case.

Your dealer will be pleased to supply you.

G. H. Sherman, M. D.
DETROIT - - - MICHIGAN

Largest Producer of Stock and Autogenous Vaccines

Thermolite
LIGHT AND HEAT INFUSER



"——the anodyne effect is of inestimable value"

In cases of contusions, bruises, lacerations and similar injuries common in the industrial field, the use of photo-therapeutic measures has greatly assisted the industrial surgeon and nurse.

To the public health nurse the value of radiant energy properly applied is daily apparent.

Radiant light and Heat are delivered in PARALLEL Rays for the treatment of

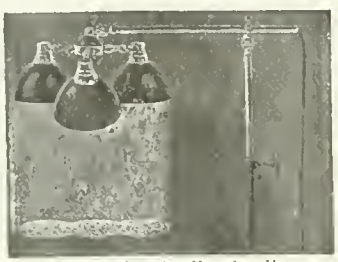
Neuralgia	Rheumatism	Chronic Ulcers
Sprains	Neuritis	Local Infections
Lumbago	Arthritis	Dsymenorrhea

and many other conditions.

Because the rays are parallel, they bring quick relief from pain, reduce inflammation, and promote healing.

ThermoLite is supplied in two forms- the **Triplex** for hospital clinics and office use, and **Simplex** (single lamp with or without stand) for home use.

H. G. McFaddin & Co.
39 Warren St., New York City



Showing **Triplex** in lineal adjustment for spinal application.

A LIVE HEALTH CRUSADE IN MILWAUKEE

Public and private agencies are cooperating in health educational work in Milwaukee. The Department of Health now supervises the health of 25,512 children in sixty-nine parochial and private schools, and 66,066 children in seventy-four public schools, according to Dr. George C. Ruhland, the City Health Officer.

Lectures on the essentials of school hygiene have been given before teachers and parents. Special health crusades have been carried on in schools and homes by the Junior Red Cross. Dietetic measures have been instituted for the undernourished; fresh air schools have been sponsored by the Wisconsin Anti-Tuberculosis Association; dental service is provided, and dispensaries give medical service when pupils are unable to have it otherwise. A substantial increase in the annual budget for health purposes enabled an increase in its staff of physicians as well as nurses for school medical inspection work.

BETTER CARE FOR SOLDIERS

A division of authority has been partly to blame for the recent criticism of the service to soldiers recently, a condition which will be remedied by the recent action of Secretary of the Treasury Houston in placing the War Risk and the Health Service under one assistant secretary.

Aside from the matters of reorganization now under way the most pressing need of the service is a marked increase in the number and efficiency of hospitals. Probably 30 per cent of the hospitals now in use should never have been utilized for hospital purposes, according to officials of the Public Health Service. These must be remedied and new hospitals erected, if proper care is to be given.

The chief difficulty has been in providing hospitals suitable for the care of the mentally deranged veterans, and for this there is no remedy until Congress can make appropriations for additional hospitals.

NEW AID FOR THE TUBERCULOUS

Promise is held out for certain patients in the South who have been treated for tuberculosis, in a report from Army medical authorities at General Hospital No. 19, at Oteen, N. C., which states that mistaken diagnosis is quite possible in the case of tuberculosis and hookworm.

The Army authorities now examine every man who enters this hospital for hookworm, and this is done irrespective of his birthplace or early geographical environment. The report says many cases which had been diagnosed as tuberculosis, on further examination showed signs of hookworm. Under treatment for hookworm, the patient regains his weight, the hemoglobin content increases, the red blood cell count goes to normal, and the color improves.

The proportion of hookworm found has been great, and the proportion of men thus afflicted, whose condition has simulated tuberculosis and yet who are non-tubercular, is said to be "startlingly large." So far as is known, this is the first medical investigation made along these lines.

Accurate figures as to the number of hookworm cases which had shown all the indications of tuberculosis will soon be compiled. It is estimated that about 10 per cent of the patients suffer from hookworm at the time of admission, and that about 2 per cent do not have tuberculosis. Even in a special field like tuberculosis a confusion of issues may arise and proof positive as to diagnosis becomes the first essential.

R
11
N4
v.2

The Nation's health

Biological
& Medical
Serials

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY